

Arizona State Retirement System

Independent ASRS Investment Program Oversight for the Period Ending June 30, 2013

August 23, 2013

Allan Martin, Partner, NEPC
Dan LeBeau, Consultant, NEPC



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ASRS Investment Objectives/Performance

Note: All of the data shown on the following pages is as of June 30, 2013 and reflects the deduction of investment manager fees, unless otherwise noted.



Macro

- Objective #1: Achieve a twenty-year rolling annual total fund net rate of return equal to or greater than the actuarial assumed interest rate.
- Objective #2: Achieve one- and three-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS Strategic Asset Allocation Policy (SAAP) Benchmark.
- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.
- Objective #4: Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash flow requirements.

Micro

Source: ASRS Strategic Plan, March 2013

- Objective #1: Achieve a twenty-year rolling annual total fund net rate of return equal to or greater than the actuarial assumed interest rate.

	<u>20 Year Annualized Return</u>
Total Fund	8.2%
Constant 8%	<u>8.0%</u>
Excess Return	0.2%

Goal Met: Yes

- Objective #2: Achieve one- and three-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS Strategic Asset Allocation Policy (SAAP) Benchmark.

	Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception (6/30/75)
Total Fund	-0.1%	13.1%	12.6%	5.9%	7.4%	9.8%
Interim SAA Policy¹	0.0%	12.6%	12.4%	5.4%	7.0%	9.6%
Excess Return	-0.1%	0.5%	0.2%	0.5%	0.4%	0.2%

1 Year Goal Met: Yes
3 Year Goal Met: Yes

¹Composition of SAA Policy can be found in the appendix.

Arizona State Retirement System

Total Fund Attribution Analysis

Total Plan	1 Year	3 Years	5 Years
Allocation Effect ¹	1.24%	0.42%	0.33%
Manager Selection Effect ²	-0.77%	-0.22%	0.31%
Residual ³	-0.02%	0.04%	-0.10%
Excess Return	0.45%	0.24%	0.54%

Source: State Street Investment Analytics

¹Contribution due to over/underweights relative to Interim* Strategic Asset Allocation Policy (SAAP) Benchmark.

²Contribution due to manager selection (net) and interaction effect.

³Contribution due to activities not captured in allocation and manager selection effects.

*Pro-rates unfunded Private Equity, Private Debt and Real Estate allocations.



NEPC, LLC

June 30, 2013

Arizona State Retirement System

Total Fund Attribution Detail

1 Year Excess Return: +0.5%

- Allocation Effect: +1.24%
 - Public Markets Fixed Income tactical underweight (+1.22%)
 - International Equity tactical underweight (-0.45%)
 - Private Equity and Real Estate underweight (+0.22%)
 - Commodities tactical underweight (+0.21%)
 - U.S. Equity tactical overweight (+0.11%)
- Manager Effect: -0.77%
 - International Equity underperformed due to various managers (-0.86%)
 - Real Estate and Opportunistic Equity outperformed due to various managers (+0.23%)
 - Private Equity underperformed due to various managers (-0.16%)
- Residual: -0.02%

3 Years Excess Return: +0.2%

- Allocation Effect: +0.42%
 - Public Markets Fixed Income tactical underweight (+0.54%)
 - International Equity tactical underweight (-0.19%)
 - Commodities tactical underweight (+0.12%)
- Manager Effect: -0.22%
 - International Equity underperformed due to various managers (-0.25%)
 - GTAA outperformed due to Bridgewater (+0.17%)
 - Opportunistic Debt underperformed due to various managers (-0.13%)
- Residual: +0.04%

5 Years Excess Return: +0.5%

- Allocation Effect: +0.33%
 - Public Markets Fixed Income tactical underweight (+0.33%)
 - Real Estate underweight (+0.13%)
 - International Equity tactical underweight (-0.10%)
- Manager Effect: +0.31%
 - GTAA outperformed due to Bridgewater (+0.26%)
 - Large cap and small cap equity outperformed due to various managers (+0.12%)
 - Private equity underperformed due to various managers (-0.09%)
- Residual Effect: -0.10%

Source: State Street Investment Analytics

Note: Explanatory details of each effect represent the most notable contributions and may not sum to the total effect.



NEPC, LLC

June 30, 2013

Asset Class Performance vs. Benchmark – Public Markets

- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

	1 Year Return	3 Year Return
ASRS Total Domestic and Int'l Equity ¹	18.8%	15.5%
ASRS Custom Total Equity Benchmark	19.2%	15.6%
Excess Return	-0.4%	-0.1%
ASRS Domestic Equity	22.2%	18.9%
ASRS Custom Domestic Equity Benchmark	22.0%	18.9%
Excess Return	0.2%	0.0%
ASRS International Equity	14.0%	8.6%
ASRS Custom Int'l Equity Benchmark	15.1%	9.1%
Excess Return	-1.1%	-0.5%
ASRS Public Markets Fixed Income	-0.3%	4.2%
ASRS Custom Fixed Income Benchmark	-0.2%	3.9%
Excess Return	-0.1%	0.3%
ASRS GTAA	12.7%	14.0%
ASRS Custom GTAA Benchmark	12.8%	12.3%
Excess Return	-0.1%	1.7%
ASRS Inflation-Linked	-5.0%	-1.2%
ASRS Custom Inflation-Linked Benchmark	-8.0%	-3.5%
Excess Return	3.0%	2.3%

¹Performance of ASRS Total Domestic and Int'l Equity includes the performance of the ASRS Domestic Equity and ASRS International Equity asset classes and the Equity Risk Factor Portfolio with an inception date of 6/1/2013.

Note: Composition of ASRS Custom Asset Class Benchmarks can be found in the appendix.

**Goal Met:
Partially**

Asset Class Performance vs. Benchmark – Private Markets¹

- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

	1 Year Return	3 Year Return	IRR Since Inception	Inception Date
ASRS Private Equity	12.6%	15.0%	11.1%	Sep-07
Russell 2000	16.3%	13.5%	13.4%	
Excess Return	-3.7%	1.5%	-2.3%	
ASRS Opportunistic Equity ²	41.1%	--	32.4%	Apr-11
ASRS Private Debt	--	--	14.4%	Jul-12
S&P/LSTA Levered Loan Index + 250 bps	10.6%	8.8%	8.8%	
Excess Return	--	--	5.6%	
ASRS Opportunistic Debt ²	12.4%	11.1%	12.7%	Jul-08
ASRS Real Estate	12.8%	13.9%	4.3%	Sep-05
NFI - ODCE Index	10.8%	15.1%	3.5%	
Excess Return	2.0%	-1.2%	0.8%	

¹Performance of private markets portfolios and corresponding benchmarks is reported on a one quarter lag. Performance shown as of March 31, 2013.

²Net absolute rate of return expectations range from 10-14% per annum.

Note: Time-weighted performance of private markets portfolios shown for the one- and three-year periods to reconcile Total Fund performance as it is reported on a time-weighted basis. Due to the drawdown nature of private markets portfolios in which the investment managers call capital over time, dollar-weighted performance, or internal rate of return (IRR) is a more appropriate measure of the performance of ASRS private markets portfolios.

**Goal Met:
Partially**



- Objective #4: Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash flow requirements.

Month	Cash In	Cash Out	Balance as of 1st Business Day
Jul-12	\$196,953,369	(\$172,832,878)	\$28,979,942
Aug-12	\$193,545,607	(\$173,883,626)	\$81,405,030
Sep-12	\$833,223,748	(\$178,265,795)	\$658,642,458
Oct-12	\$444,518,602	(\$179,375,084)	\$282,753,603
Nov-12	\$261,546,308	(\$182,843,286)	\$79,446,600
Dec-12	\$555,629,452	(\$180,760,550)	\$372,709,821
Jan-13	\$440,341,987	(\$180,438,071)	\$259,722,610
Feb-13	\$270,343,225	(\$180,786,807)	\$99,165,260
Mar-13	\$275,847,455	(\$181,236,080)	\$89,033,161
Apr-13	\$223,752,576	(\$182,003,067)	\$65,075,125
May-13	\$466,869,533	(\$182,469,344)	\$285,187,177
Jun-13	\$357,254,932	(\$182,835,622)	\$212,223,877

All Pension Obligations, Capital Calls and Other Requirements Met with Available Cash

Goal Met: Yes

Note:

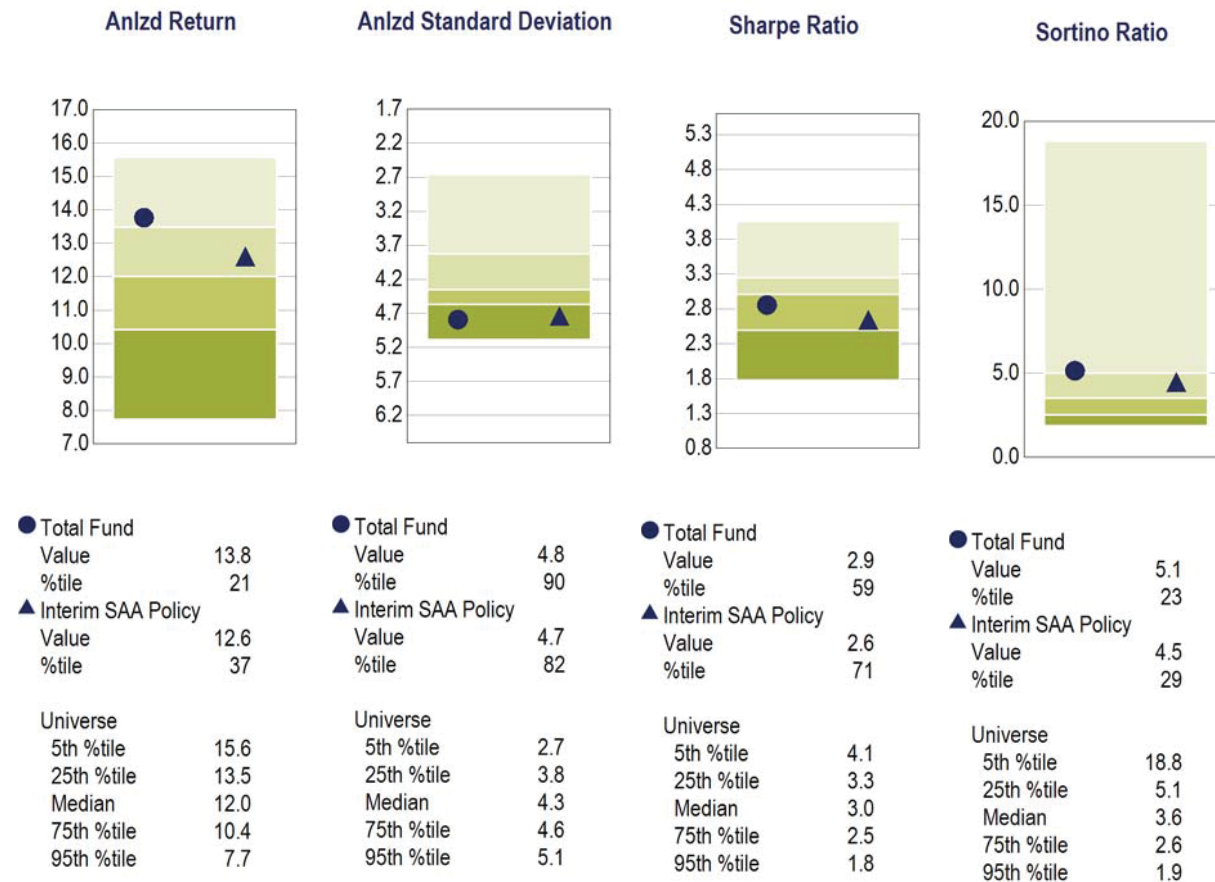
Cash In - The balance as of the business day prior to the monthly pension run payment, comprised of month-to-date contributions and excess cash held to fund manager(s) or as a tactical allocation.

Cash Out - The monthly pension run payment.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

1 Year

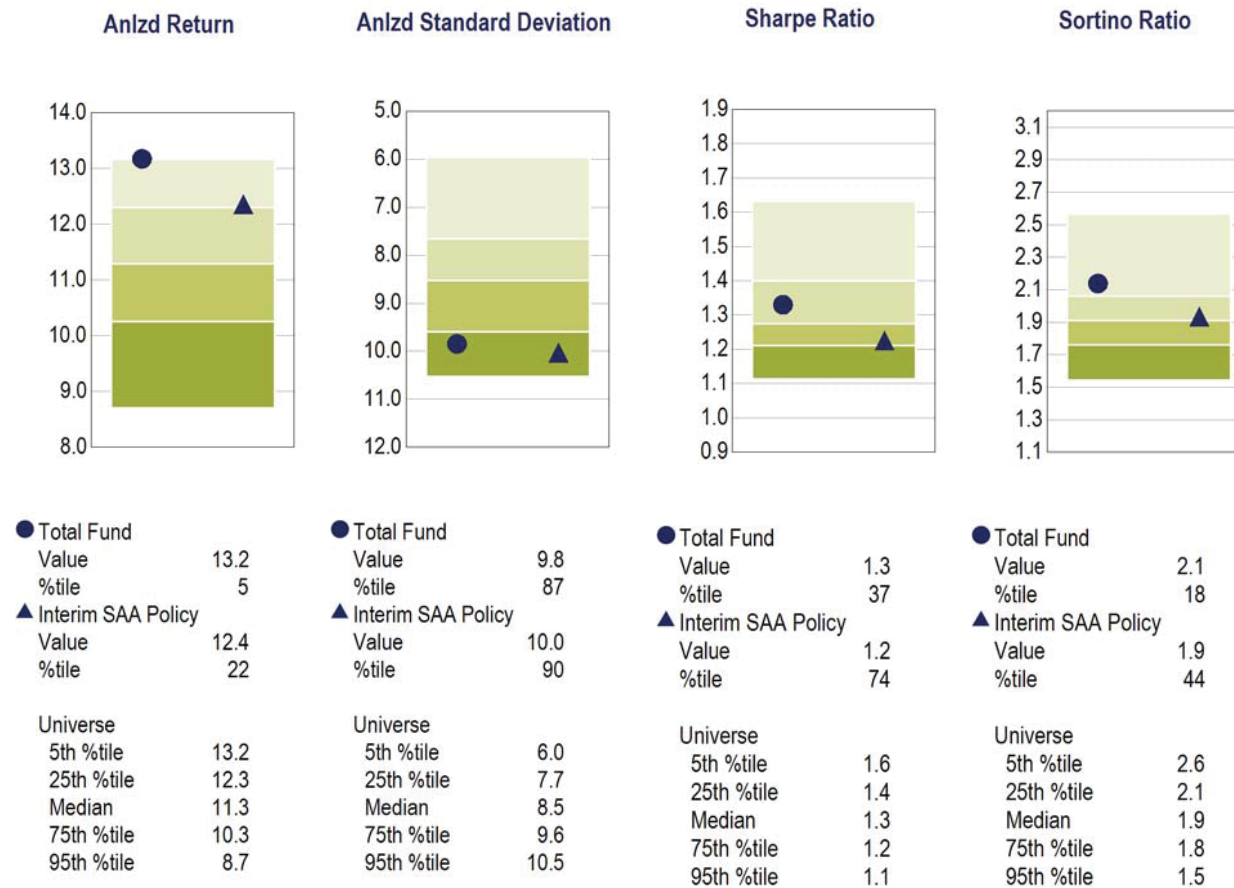


Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results. Universes are constructed using gross of fee returns; therefore, ASRS rank is based on gross of fee returns. Rankings are from highest (1) to lowest (100) in the InvestorForce Public Funds > \$1 Billion Universe. The InvestorForce Public Funds > \$1 Billion Universe contains 55 observations for the one-year period ending June 30, 2013, with total assets of \$371.2 billion. Composition of Interim SAA Policy can be found in the appendix.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

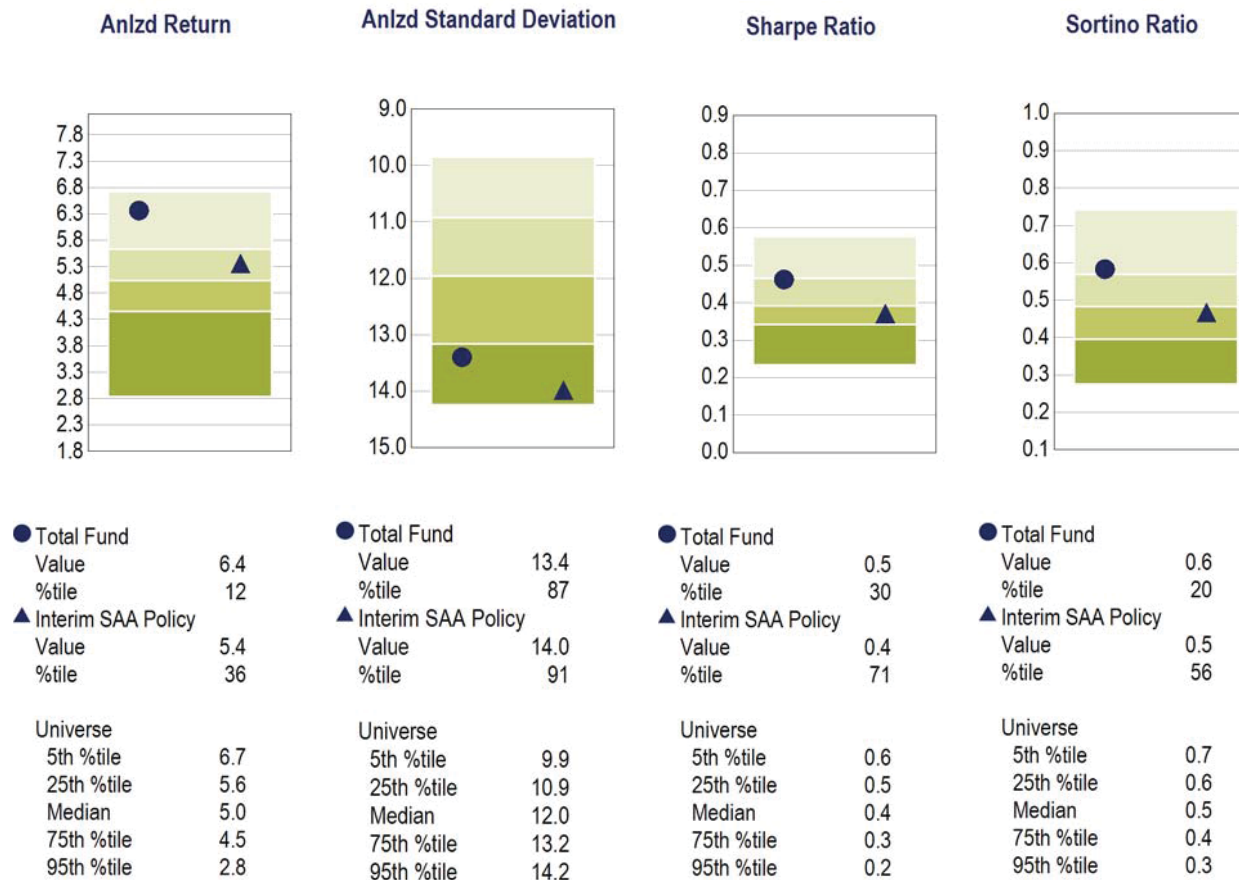
3 Year



Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results. Universes are constructed using gross of fee returns; therefore, ASRS rank is based on gross of fee returns. Rankings are from highest (1) to lowest (100) in the InvestorForce Public Funds > \$1 Billion Universe. The InvestorForce Public Funds > \$1 Billion Universe contains 51 observations for the three-year period ending June 30, 2013, with total assets of \$371.2 billion. Composition of Interim SAA Policy can be found in the appendix.

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

5 Year

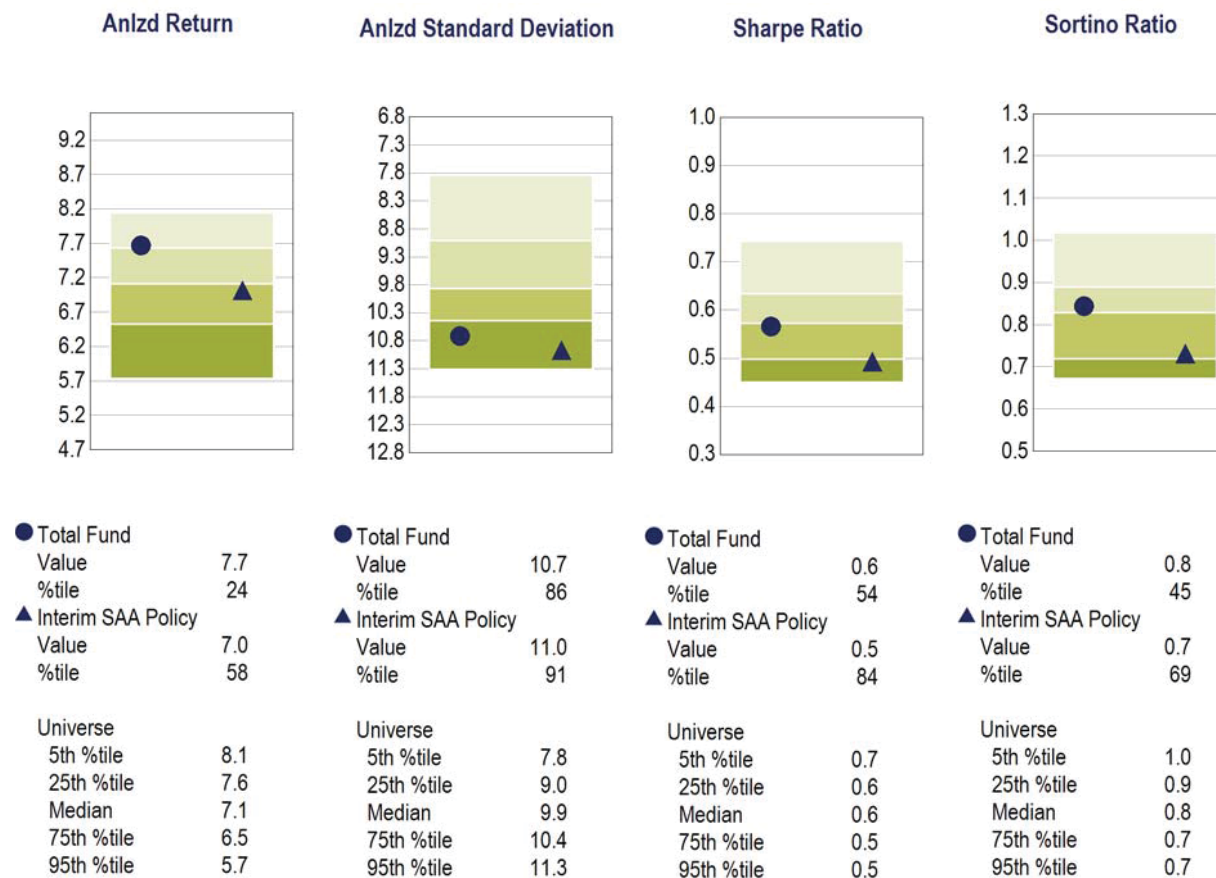


Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results. Universes are constructed using gross of fee returns; therefore, ASRS rank is based on gross of fee returns. Rankings are from highest (1) to lowest (100) in the InvestorForce Public Funds > \$1 Billion Universe. The InvestorForce Public Funds > \$1 Billion Universe contains 51 observations for the five-year period ending June 30, 2013, with total assets of \$371.2 billion. Composition of Interim SAA Policy can be found in the appendix.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

10 Year



Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results. Universes are constructed using gross of fee returns; therefore, ASRS rank is based on gross of fee returns. Rankings are from highest (1) to lowest (100) in the InvestorForce Public Funds > \$1 Billion Universe. The InvestorForce Public Funds > \$1 Billion Universe contains 48 observations for the ten-year period ending June 30, 2013, with total assets of \$371.2 billion. Composition of Interim SAA Policy can be found in the appendix.

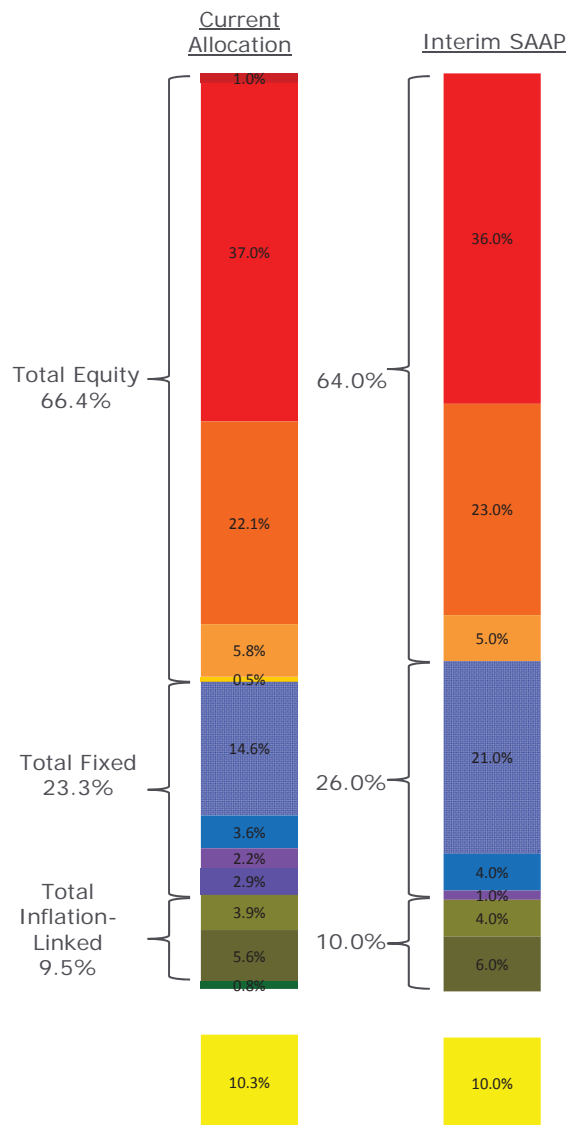
Independent Oversight/Compliance

Note: All of the data shown on the following pages is as of June 30, 2013 and reflects the deduction of investment manager fees, unless otherwise noted.



Arizona State Retirement System

SAA Policy Compliance



	Current Mkt Value	Current Allocation	Interim SAAP	Difference	Policy Range	Within Range
Total Domestic and International Equity¹	\$18,289,164,731	60.1%	59.0%	1.1%		
Domestic Equity³	\$11,252,422,569	37.0%	36.0%	1.0%	26% - 38%	Yes
U.S. Large Cap ²	\$7,953,387,445	26.2%	26.0%	0.2%		
U.S. Mid Cap	\$1,586,030,622	5.2%	5.0%	0.2%		
U.S. Small Cap	\$1,609,677,550	5.3%	5.0%	0.3%		
International Equity³	\$6,726,039,014	22.1%	23.0%	-0.9%	16% - 28%	Yes
Developed Large Cap ²	\$4,081,154,658	13.4%	14.0%	-0.6%		
Developed Small Cap	\$924,030,302	3.0%	3.0%	0.0%		
Emerging Markets	\$1,720,739,252	5.7%	6.0%	-0.3%		
Private Equity⁴	\$1,753,898,334	5.8%	5.0%	0.8%	5% - 9%	Yes
Opportunistic Equity^{4,6}	\$159,336,472	0.5%	0.0%	0.5%	0% - 3%	Yes
Total Equity	\$20,202,399,537	66.4%	64.0%	2.4%	53% - 70%	Yes
U.S. Fixed Income	\$4,444,197,789	14.6%	21.0%	-6.4%	8% - 28%	Yes
Core ²	\$3,316,927,088	10.9%	16.0%	-5.1%		
High Yield	\$1,127,270,701	3.7%	5.0%	-1.3%		
Emerging Market Debt	\$1,086,913,669	3.6%	4.0%	-0.4%		
Private Debt⁴	\$664,683,681	2.2%	1.0%	1.2%		
Opportunistic Debt^{4,6}	\$882,371,768	2.9%	0.0%	2.9%	0% - 10%	Yes
Total Fixed Income	\$7,078,166,907	23.3%	26.0%	-2.7%	15% - 35%	Yes
Commodities²	\$1,174,988,617	3.9%	4.0%	-0.1%	1% - 7%	Yes
Real Estate^{2,4}	\$1,711,303,811	5.6%	6.0%	-0.4%	6% - 10%	No
Infrastructure	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Farmland and Timber	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Opportunistic Inflation-Linked⁵	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Total Inflation-Linked	\$2,886,292,428	9.5%	10.0%	-0.5%	8% - 16%	Yes
Cash⁵	\$244,136,658	0.8%	0.0%	0.8%		
Total	\$30,410,995,529	100.0%	100.0%	0.0%		

Global Tactical Asset Allocation (GTAA)² **\$3,138,706,276** **10.3%** **10.0%** **0.3%** **5% - 15%** **Yes**

¹Total Domestic and International Equity includes Equity Risk Factor Portfolio with assets of \$310.7 million.

²GTAA allocation distributed into U.S. Large Cap Equity, Int'l Developed Large Cap Equity, Core Fixed Income, Commodities and Real Estate.

³Domestic and International Equity market values include residual values remaining in terminated manager accounts.

⁴Values shown for private markets portfolios include cash flows that occurred during 2Q2013.

⁵Cash includes money for the upcoming monthly pension distribution. Value shown also includes assets in liquidating GTAA account.

⁶Aggregate Opportunistic asset classes not to exceed 10%

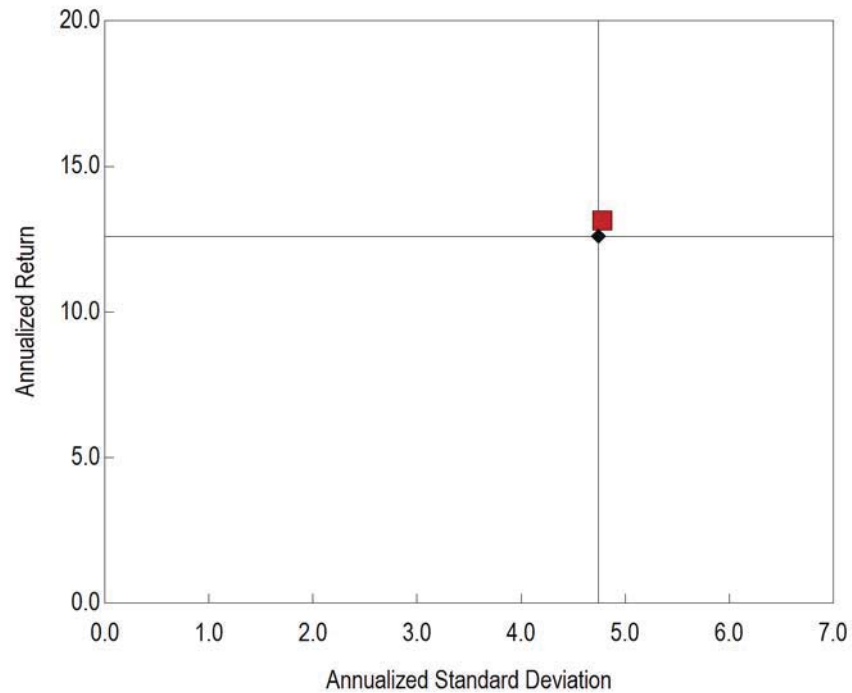
Note: Interim SAA Policy includes proration of 2% Private Equity, 2% Private Debt and 2% Real Estate, which are unfunded.

Policy Ranges shown are relative to the long-term SAAP, causing some asset classes to be out of range while implementation of the long-term SAAP is in process.

Market values include manager held cash.

Total Fund Analysis

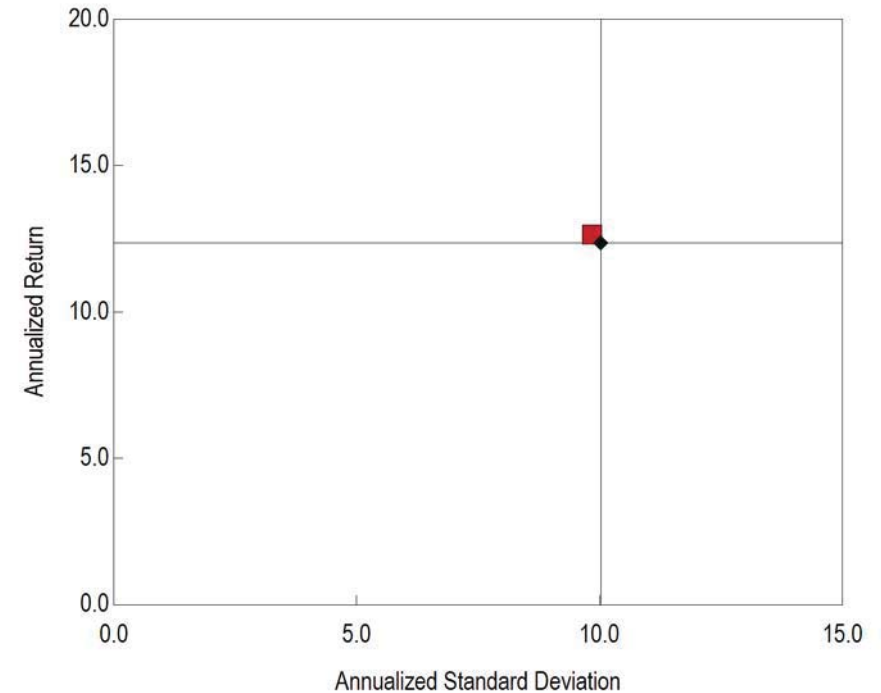
1 Year Ending June 30, 2013



1 Year Ending June 30, 2013

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	13.1%	4.8%	2.7	4.7
Interim SAA Policy	12.6%	4.7%	2.6	4.5

3 Years Ending June 30, 2013

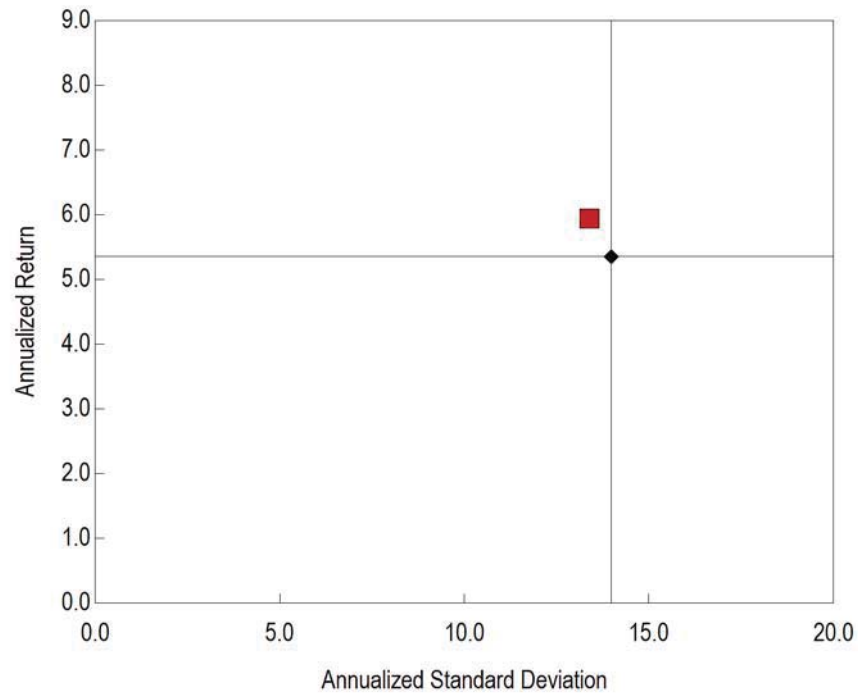


3 Years Ending June 30, 2013

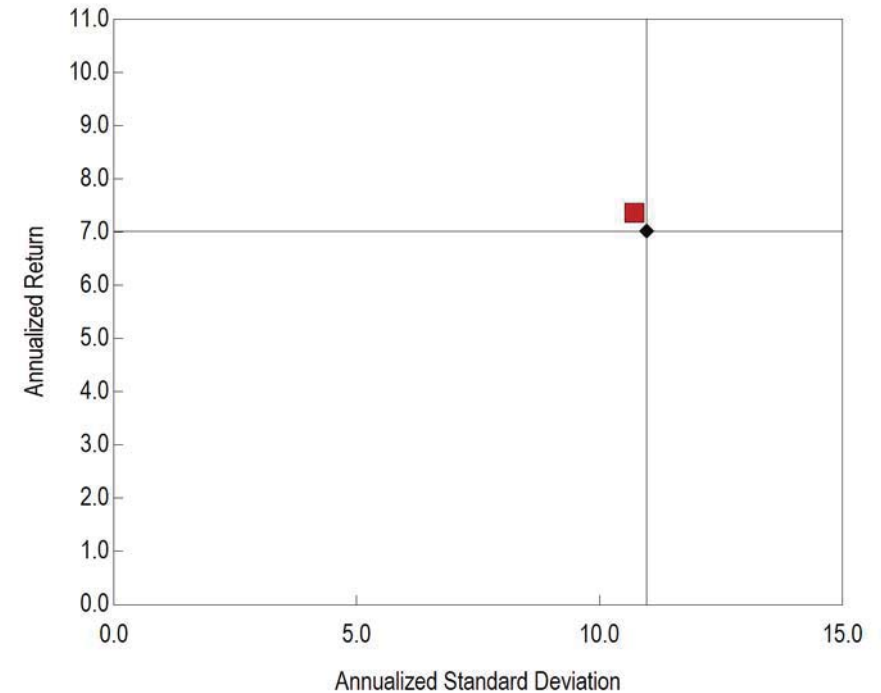
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	12.6%	9.8%	1.3	2.0
Interim SAA Policy	12.4%	10.0%	1.2	1.9

Total Fund Analysis

5 Years Ending June 30, 2013



10 Years Ending June 30, 2013



5 Years Ending June 30, 2013

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	5.9%	13.4%	0.4	0.5
Interim SAA Policy	5.4%	14.0%	0.4	0.5

10 Years Ending June 30, 2013

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	7.4%	10.7%	0.5	0.8
Interim SAA Policy	7.0%	11.0%	0.5	0.7

Arizona State Retirement System

Asset Class Performance Summary - Public Markets

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	6 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Fund	30,410,995,529	100.0	-0.1		5.9		13.1		12.6		5.9		7.4		9.8	Jul-75
Interim SAA Policy			0.0		5.2		12.6		12.4		5.4		7.0		9.6	Jul-75
Over/Under			-0.1		0.7		0.5		0.2		0.5		0.4		0.2	
Actual Benchmark			0.5		6.1		13.2		12.5		5.3		7.1		--	Jul-75
Total Domestic and International Equity¹	16,402,203,389	53.9	0.5		9.3		18.8		15.5		5.6		8.1		6.1	Jan-98
ASRS Custom Total Equity Benchmark			0.5		8.6		19.2		15.6		5.2		7.8		5.4	Jan-98
Over/Under			0.0		0.7		-0.4		-0.1		0.4		0.3		0.7	
Total Domestic Equity	10,236,509,261	33.7	2.6	53	14.7	46	22.2	51	18.9	37	8.2	41	8.5	61	11.1	Jul-75
ASRS Custom Domestic Equity Benchmark			2.8	50	14.3	51	22.0	53	18.9	38	7.7	48	7.8	74	11.2	Jul-75
Over/Under			-0.2		0.4		0.2		0.0		0.5		0.7		-0.1	
eA All US Equity Net Median			2.8		14.3		22.3		18.1		7.5		9.2		12.2	Jul-75
Total International Equity	5,854,990,980	19.3	-2.9	81	0.5	79	14.0	76	8.6	79	0.0	69	7.8	85	6.1	Apr-87
ASRS Custom Int'l Equity Benchmark			-2.8	80	0.9	72	15.1	67	9.1	74	0.0	70	8.9	67	5.7	Apr-87
Over/Under			-0.1		-0.4		-1.1		-0.5		0.0		-1.1		0.4	
eA All ACWI ex-US Equity Net Median			-1.5		2.7		16.2		10.5		1.2		9.6		7.5	Apr-87
Total Public Markets Fixed Income	4,581,559,528	15.1	-3.6	88	-3.1	85	-0.3	77	4.2	50	5.9	44	4.9	44	8.6	Jul-75
ASRS Custom Fixed Income Benchmark			-3.0	80	-2.4	71	-0.2	76	3.9	55	5.4	51	4.6	49	--	Jul-75
Over/Under			-0.6		-0.7		-0.1		0.3		0.5		0.3			
eA All US Fixed Inc Net Median			-2.0		-1.7		0.6		4.1		5.5		4.6		--	Jul-75
Total GTAA	3,138,706,276	10.3	-0.6	11	4.5	10	12.7	8	14.0	1	8.1	1	--	--	7.3	Jan-04
ASRS Custom GTAA Benchmark			0.0	4	5.8	7	12.8	8	12.3	2	5.3	17	6.7	63	5.8	Jan-04
Over/Under			-0.6		-1.3		-0.1		1.7		2.8				1.5	
eA Global TAA Net Median			-2.4		0.5		5.2		6.8		3.4		7.4		6.0	Jan-04
Total Inflation-Linked Assets	902,077,285	3.0	-8.7	--	-9.8	--	-5.0	--	-1.2	--	--	--	--	--	-0.3	Feb-10
ASRS Custom Inflation-Linked Benchmark			-9.5	--	-10.5	--	-8.0	--	-3.5	--	-0.5	--	2.7	--	-2.3	Feb-10
Over/Under			0.8		0.7		3.0		2.3						2.0	

1. Performance of ASRS Total Domestic and International Equity includes the performance of the ASRS Domestic Equity and ASRS International Equity asset classes and the Equity Risk Factor Portfolio with an inception date of 6/1/2013. NEPC began calculating Total Domestic and International Equity performance in January 2009. Monthly performance data from January 1998 - December 2008 was provided by State Street.

Note: Performance, ranks and medians are based on net of fee performance data.
Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.
Composition of Interim SAA Policy and ASRS Custom Asset Class Benchmarks can be found in the appendix.

Arizona State Retirement System

Asset Class Performance Summary - Private Markets

	Market Value (\$)	% of Portfolio	3 Mo (%)	6 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception		
									Return (%)	IRR	Date
Total Fund	30,410,995,529	100.0	-0.1	5.9	13.1	12.6	5.9	7.4	9.8	--	Jul-75
<i>Interim SAA Policy</i>			<u>0.0</u>	<u>5.2</u>	<u>12.6</u>	<u>12.4</u>	<u>5.4</u>	<u>7.0</u>	<u>9.6</u>		<i>Jul-75</i>
Over/Under			-0.1	0.7	0.5	0.2	0.5	0.4	0.2		
<i>Actual Benchmark</i>			<u>0.5</u>	<u>6.1</u>	<u>13.2</u>	<u>12.5</u>	<u>5.3</u>	<u>7.1</u>	--		<i>Jul-75</i>
Total Private Equity	1,753,898,334	5.8	2.8	7.4	12.6	15.0	--	--	2.4	11.1	Sep-07
<i>Russell 2000 1 QTR Lagged</i>			<u>12.4</u>	<u>14.5</u>	<u>16.3</u>	<u>13.5</u>	<u>8.2</u>	<u>11.5</u>	<u>4.6</u>	<u>13.4</u>	<i>Sep-07</i>
Over/Under			-9.6	-7.1	-3.7	1.5			-2.2	-2.3	
Total Opportunistic Equity¹	159,336,472	0.5	9.1	13.1	41.1	--	--	--	18.6	32.4	Apr-11
Total Private Debt	664,683,681	2.2	5.2	7.0	--	--	--	--	13.5	14.4	Jul-12
<i>S&P/LSTA Levered Loan Index +250bps 1QTR Lagged</i>			<u>2.1</u>	<u>4.8</u>	<u>10.6</u>	<u>8.8</u>	<u>10.1</u>	<u>8.4</u>	<u>3.6</u>	<u>8.8</u>	<i>Jul-12</i>
Over/Under			3.1	2.2					9.9	5.6	
Total Opportunistic Debt¹	882,371,768	2.9	2.5	4.9	12.4	11.1	--	--	8.9	12.7	Jul-08
Total Real Estate	1,682,022,139	5.5	3.1	8.2	12.8	13.9	--	--	2.5	4.3	Sep-05
<i>NCREIF ODCE 1 QTR Lagged</i>			<u>2.7</u>	<u>5.1</u>	<u>10.8</u>	<u>15.1</u>	<u>-0.8</u>	<u>6.8</u>	<u>4.9</u>	<u>3.5</u>	<i>Sep-05</i>
Over/Under			0.4	3.1	2.0	-1.2			-2.4	0.8	

1. Net absolute rate of return expectations range from 10-14% per annum.

Note: Performance is based on net of fee performance data.

Performance data for Total Private Equity, Total Opportunistic Equity, Total Private Debt, Total Opportunistic Debt and Total Real Estate and corresponding benchmarks is lagged by one quarter. Market values shown include cash flows that occurred during 2Q2013. Performance data and market values provided by Credit Suisse Fund Group. Prior to 3Q2012, the performance of the Total Private Debt and Total Opportunistic Debt asset classes were reported together. Effective 6/30/2012, the Fund's allocation to Private Debt and Opportunistic Debt were separated and will be reported separately going forward.

Time-weighted performance of private markets portfolios shown to reconcile Total Fund performance as it is reported on a time-weighted basis. Due to the drawdown nature of private markets portfolios in which the investment managers call capital over time, dollar-weighted performance, or internal rate of return (IRR) is a more appropriate measure of the performance of ASRS private markets portfolios.

Composition of Interim SAA Policy can be found in the appendix.

Arizona State Retirement System

Public Market Asset Class Analysis

3 Years Ending June 30, 2013

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Rank	Info Ratio	Rank	Sharpe Ratio	Rank	Beta	Rank	Anlzd Alpha
Total Fund	12.6%		9.8%		1.0%		0.3		1.3		1.0		0.5%
Interim SAA Policy	12.4%		10.0%		--		--		1.2		--		--
Total Domestic and International Equity	15.5%		15.1%		0.7%		-0.2		1.0		1.0		0.0%
ASRS Custom Total Equity Benchmark	15.6%		15.3%		--		--		1.0		--		--
Total Domestic Equity	18.9%	37	14.5%	33	0.6%	1	0.1	29	1.3	27	1.0	39	-0.1%
ASRS Custom Domestic Equity Benchmark	18.9%	38	14.4%	31	--		--		1.3	26	--	37	--
Total International Equity	8.6%	79	17.8%	43	0.9%	1	-0.5	97	0.5	74	1.0	51	-0.3%
ASRS Custom Int'l Equity Benchmark	9.1%	74	18.2%	52	--		--		0.5	71	--	59	--
Total Public Markets Fixed Income	4.2%	50	3.3%	62	0.5%	1	0.6	33	1.2	69	1.1	83	0.0%
ASRS Custom Fixed Income Benchmark	3.9%	55	3.1%	58	--		--		1.2	69	--	80	--
Total Inflation-Linked Assets	-1.2%		14.9%		2.6%		0.8		-0.1		0.9		2.0%
ASRS Custom Inflation-Linked Benchmark	-3.5%		15.6%		--		--		-0.2		--		--
Total GTAA	14.0%	1	10.5%	90	1.9%	9	0.9	1	1.3	8	1.0	90	1.6%
ASRS Custom GTAA Benchmark	12.3%	2	10.2%	80	--		--		1.2	18	--	85	--

Note: Performance is reported net of fees.

Ranks for statistics shown above are based on the respective universe against which the portfolio is ranked on the asset class performance summary that precedes this section of the analysis.

Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.

Composition of Interim SAA Policy and ASRS Custom Benchmarks can be found in the appendix.

Arizona State Retirement System

Public Market Asset Class Analysis

5 Years Ending June 30, 2013

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Rank	Info Ratio	Rank	Sharpe Ratio	Rank	Beta	Rank	Anlzd Alpha
Total Fund	5.9%		13.4%		1.4%		0.4		0.4		1.0		0.8%
Interim SAA Policy	5.4%		14.0%		--		--		0.4		--		--
Total Domestic and International Equity	5.6%		19.8%		1.0%		0.4		0.3		1.0		0.6%
ASRS Custom Total Equity Benchmark	5.2%		20.3%		--		--		0.2		--		--
Total Domestic Equity	8.2%	41	19.3%	36	0.7%	1	0.7	5	0.4	33	1.0	43	0.5%
ASRS Custom Domestic Equity Benchmark	7.7%	48	19.4%	37	--		--		0.4	43	--	44	--
Total International Equity	0.0%	69	22.5%	44	2.1%	1	0.0	69	0.0	70	1.0	49	0.0%
ASRS Custom Int'l Equity Benchmark	0.0%	70	23.6%	58	--		--		0.0	70	--	66	--
Total Public Markets Fixed Income	5.9%	44	4.1%	50	1.1%	4	0.4	25	1.4	36	1.0	72	0.4%
ASRS Custom Fixed Income Benchmark	5.4%	51	3.8%	45	--		--		1.4	40	--	71	--
Total Inflation-Linked Assets	--		--		--		--		--		--		--
ASRS Custom Inflation-Linked Benchmark	--		--		--		--		--		--		--
Total GTAA	8.1%	1	13.7%	78	2.3%	10	1.2	1	0.6	14	1.0	83	3.0%
ASRS Custom GTAA Benchmark	5.3%	17	14.0%	84	--	--	--	--	0.4	42	--	85	--

Note: Performance is reported net of fees.

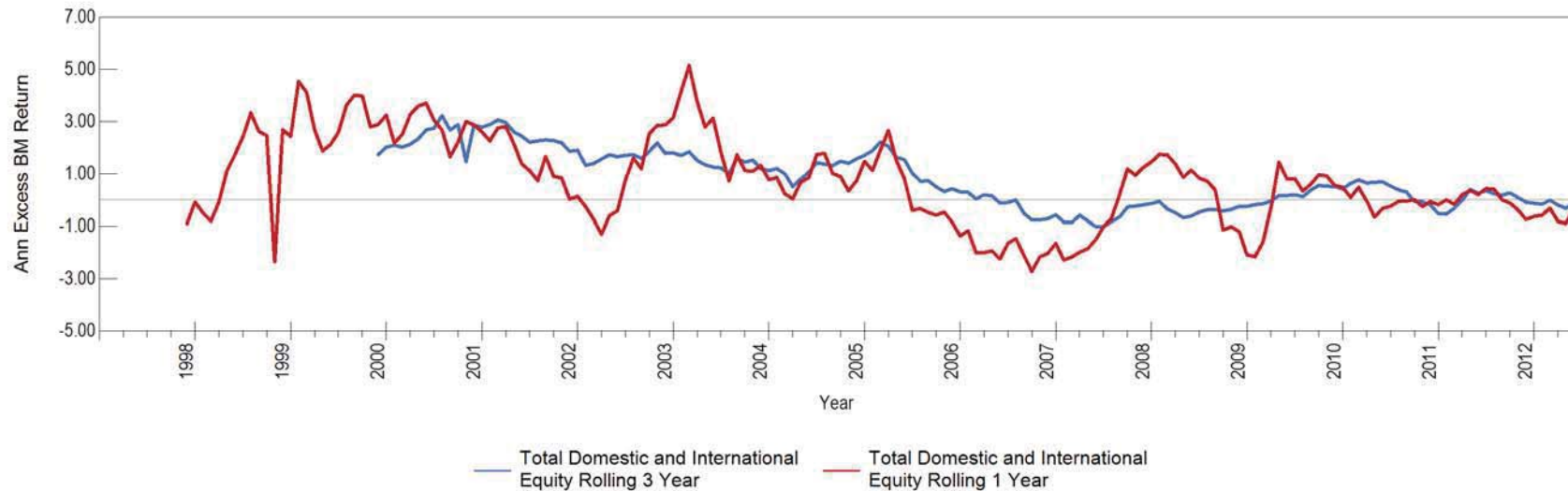
Ranks for statistics shown above are based on the respective universe against which the portfolio is ranked on the asset class performance summary that precedes this section of the analysis.

Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.

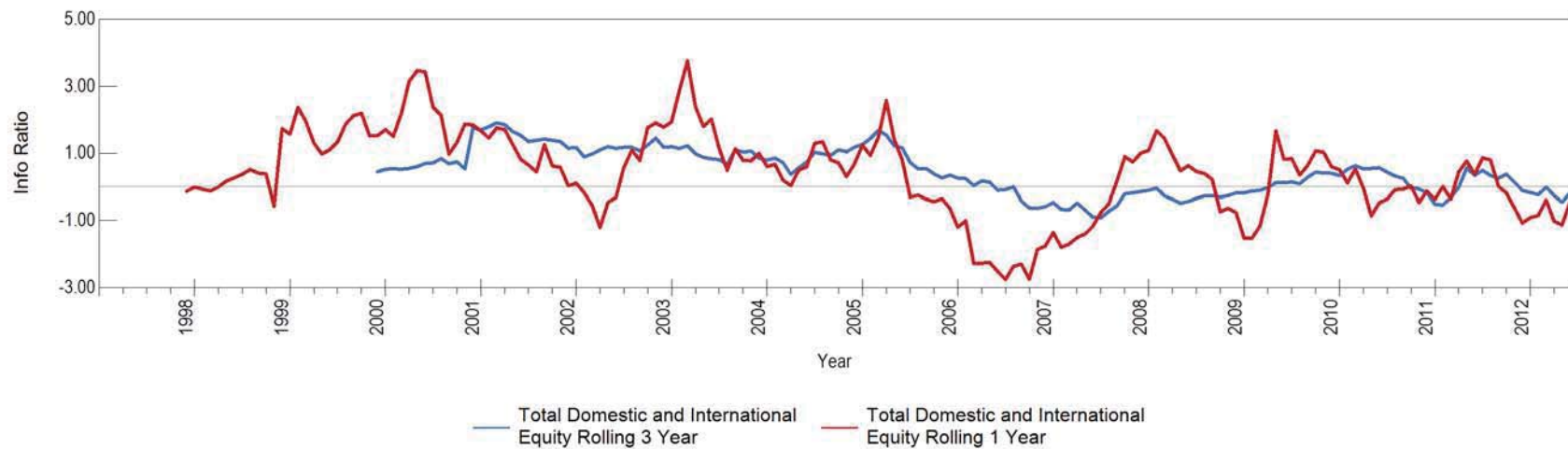
Composition of Interim SAA Policy and ASRS Custom Asset Class Benchmarks can be found in the appendix.

Asset Class Analysis - Total Domestic and International Equity

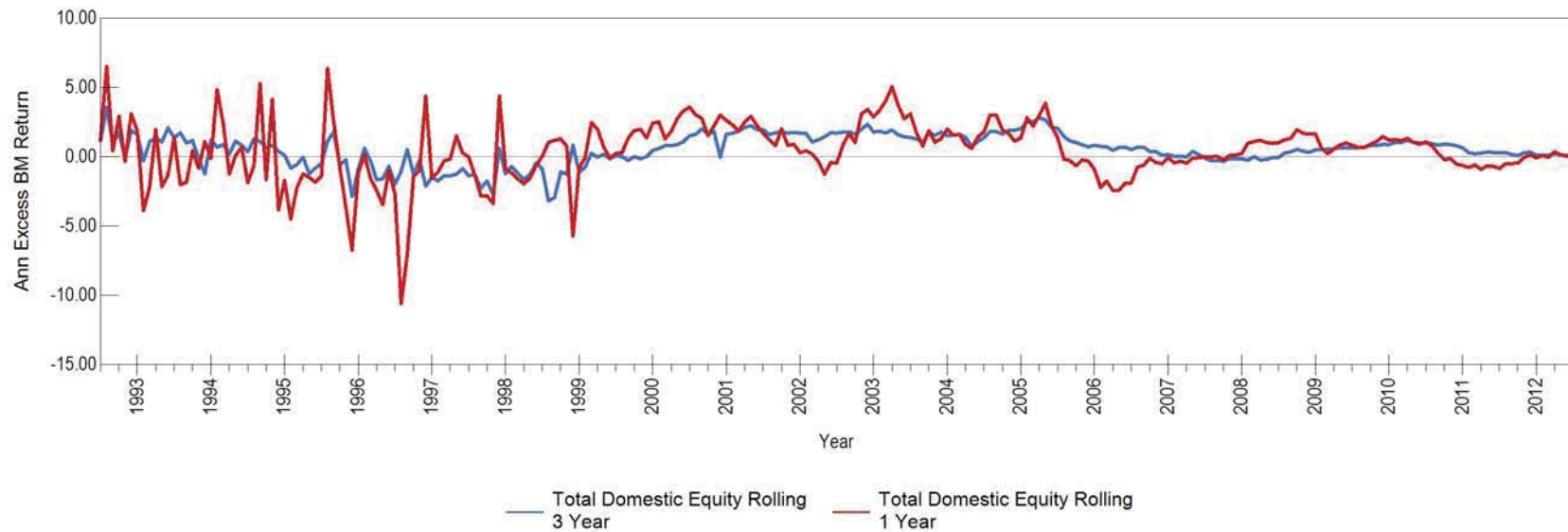
Rolling Annual Excess Benchmark Return



Rolling Information Ratio



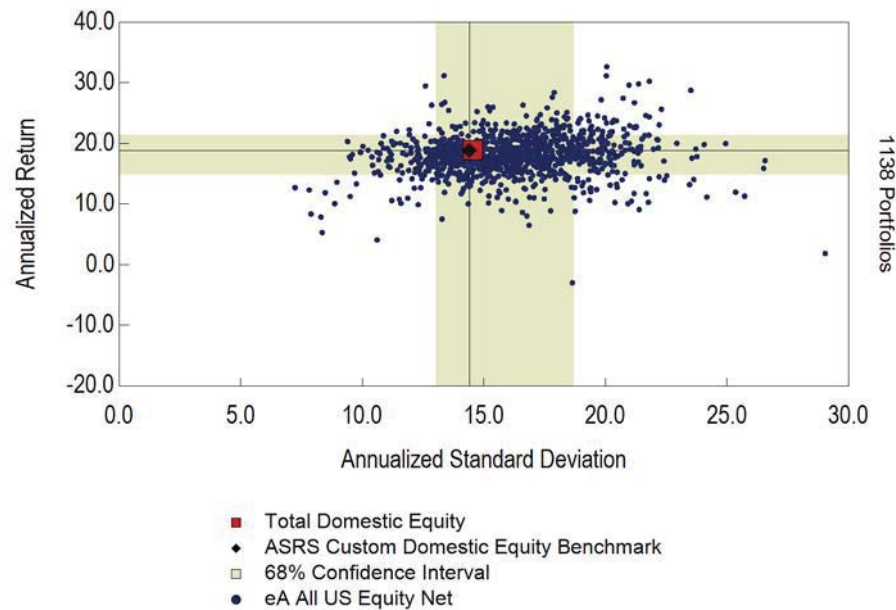
Rolling Annual Excess Benchmark Return



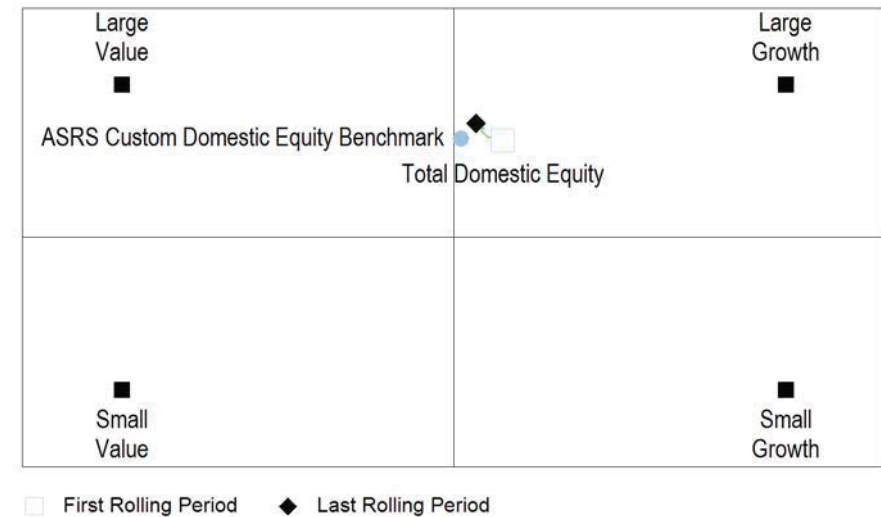
eA All US Equity Net Accounts



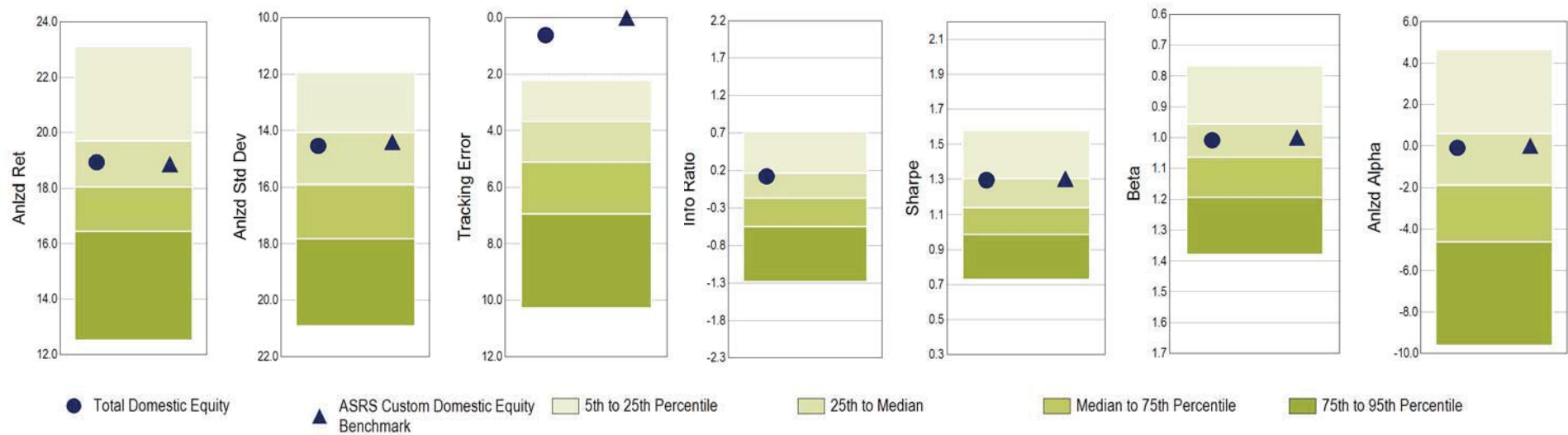
3 Year Risk Return

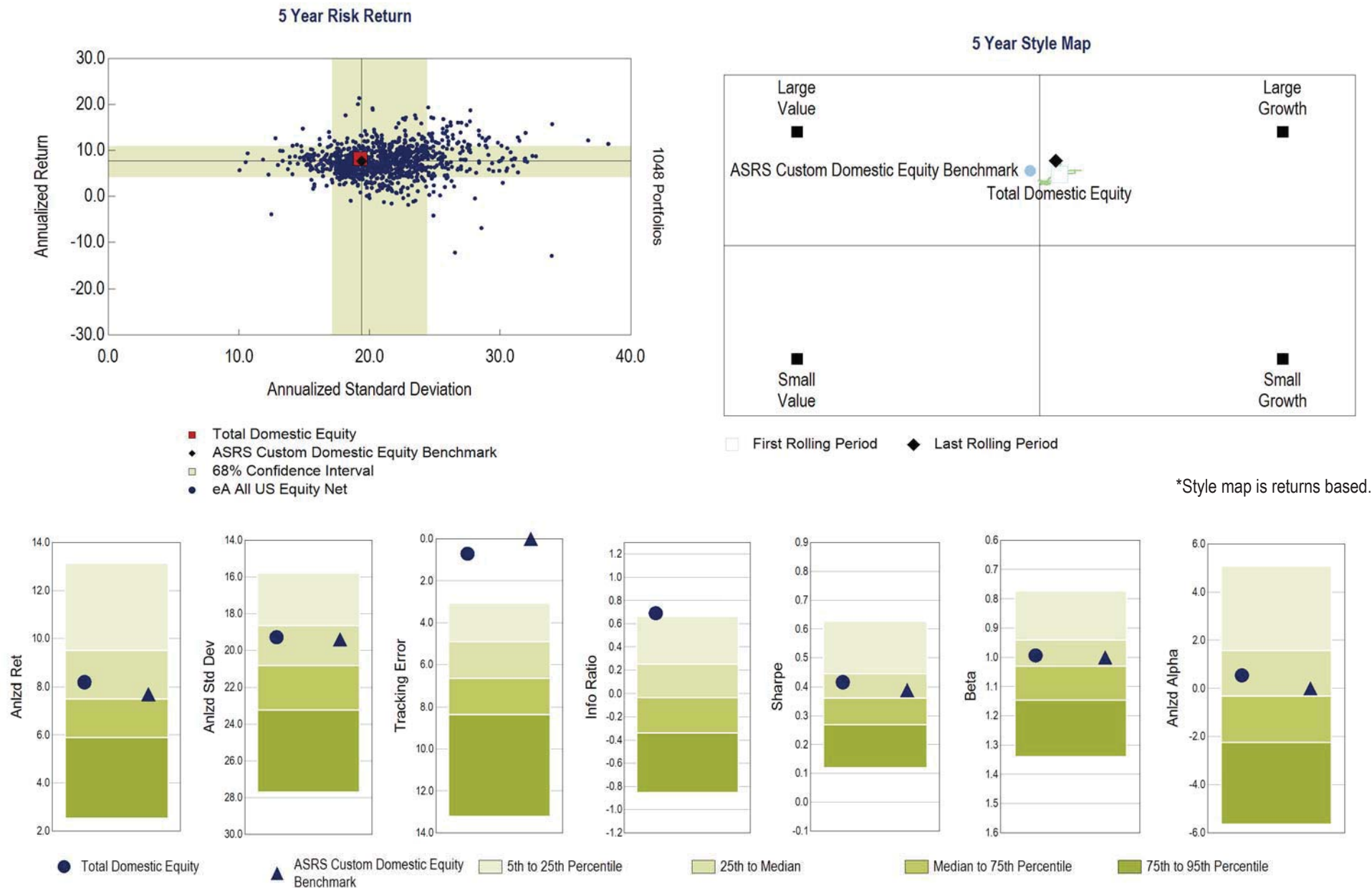


3 Year Style Map



*Style map is returns based.

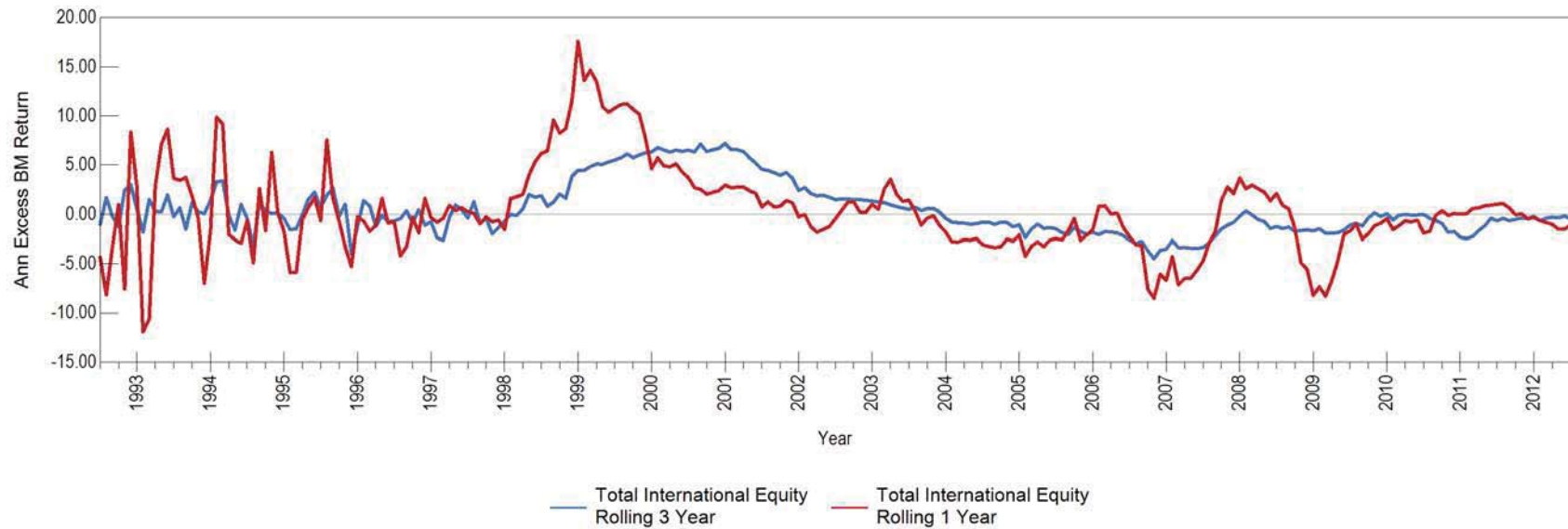




*Style map is returns based.

Asset Class Analysis - Total International Equity

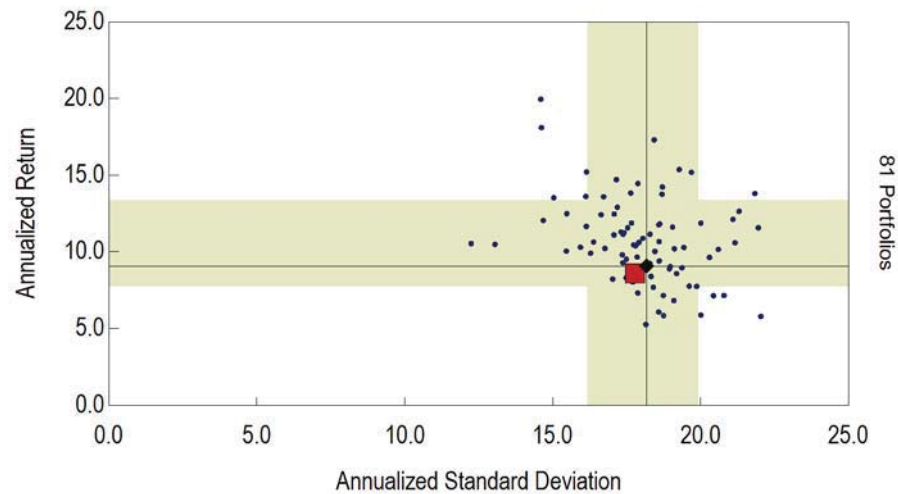
Rolling Annual Excess Benchmark Return



eA All ACWI ex-US Equity Net Accounts



3 Year Risk Return



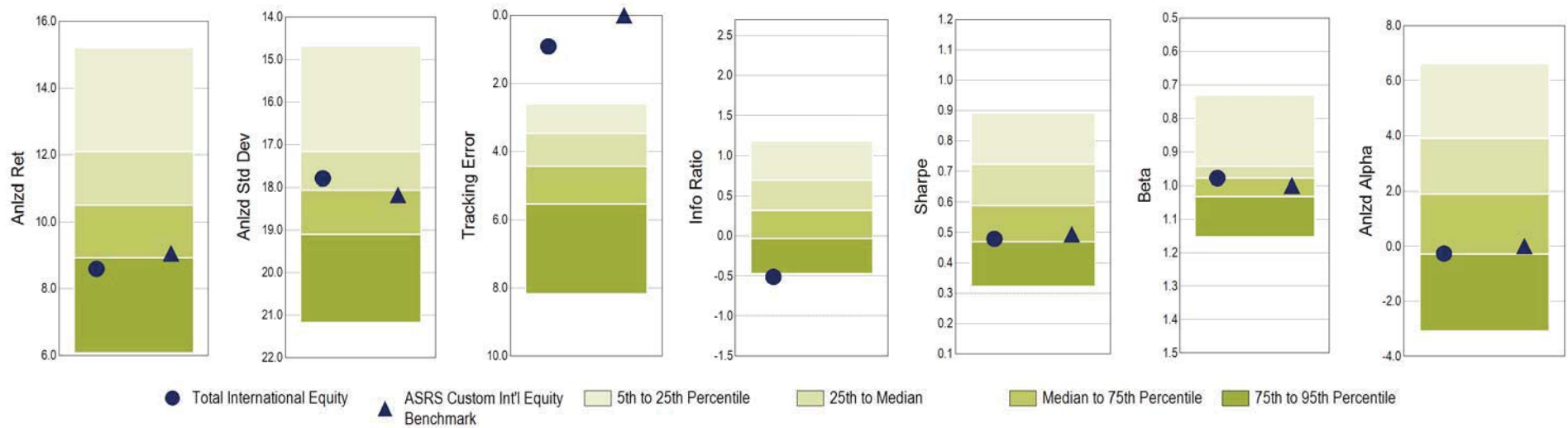
- Total International Equity
- ◆ ASRS Custom Int'l Equity Benchmark
- 68% Confidence Interval
- eA All ACWI ex-US Equity Net

3 Year Style Map

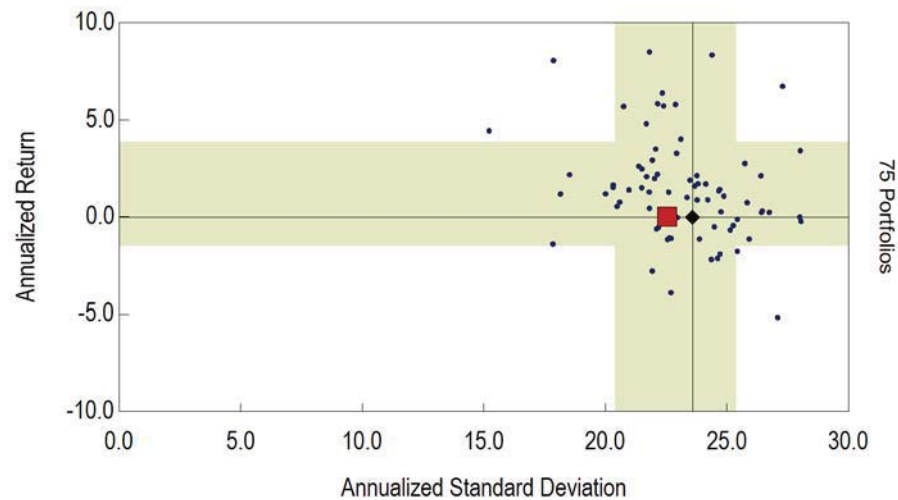


- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.

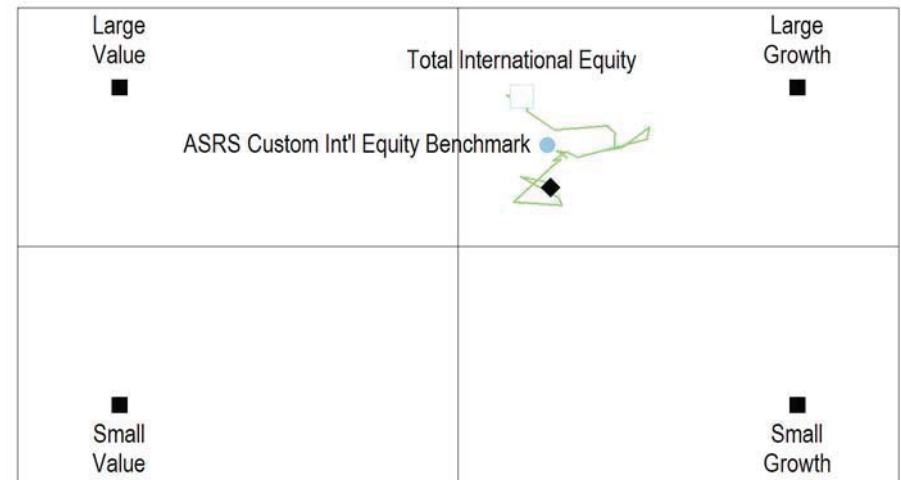


5 Year Risk Return



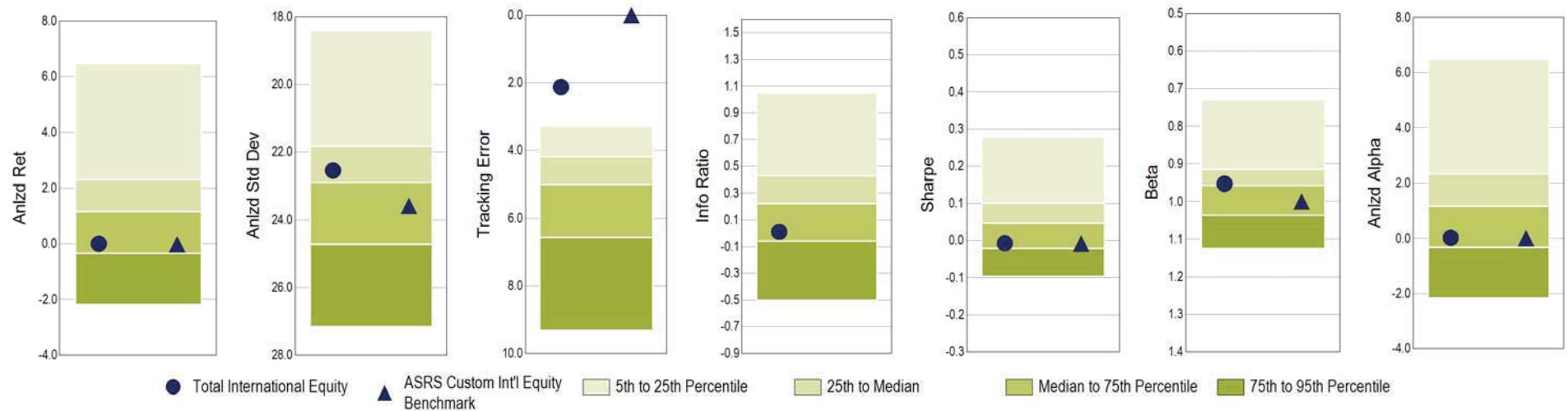
- Total International Equity
- ◆ ASRS Custom Int'l Equity Benchmark
- 68% Confidence Interval
- eA All ACWI ex-US Equity Net

5 Year Style Map

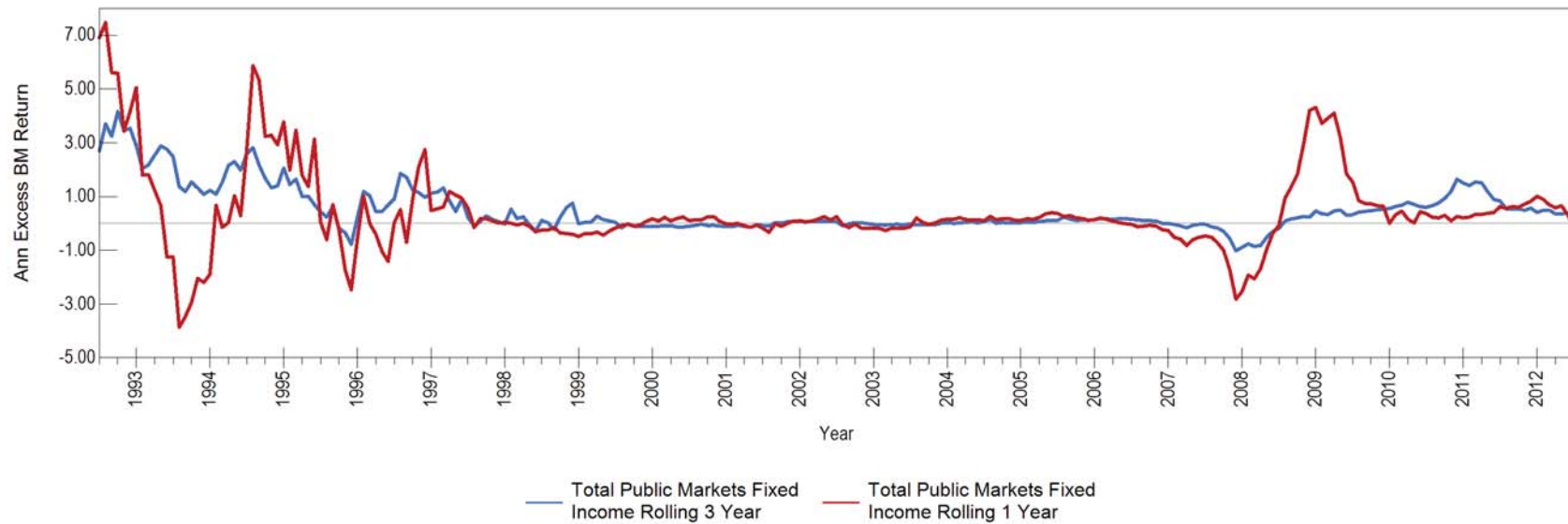


- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.



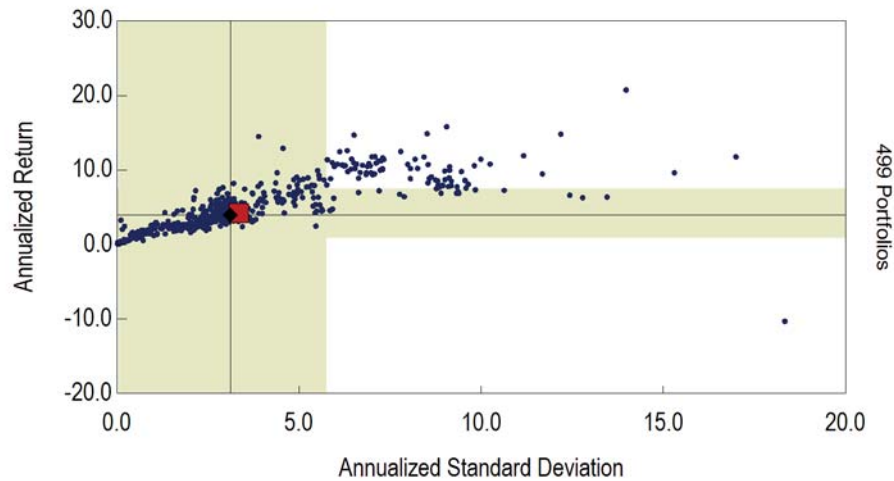
Rolling Annual Excess Benchmark Return



eA All US Fixed Inc Net Accounts



3 Year Risk Return



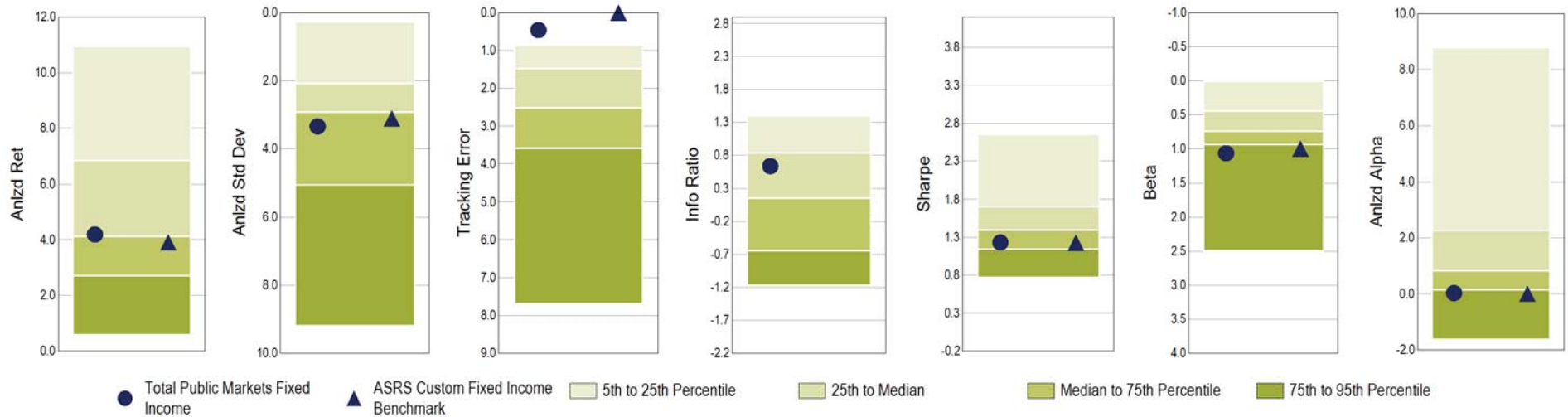
- Total Public Markets Fixed Income
- ◆ ASRS Custom Fixed Income Benchmark
- 68% Confidence Interval
- eA All US Fixed Inc Net

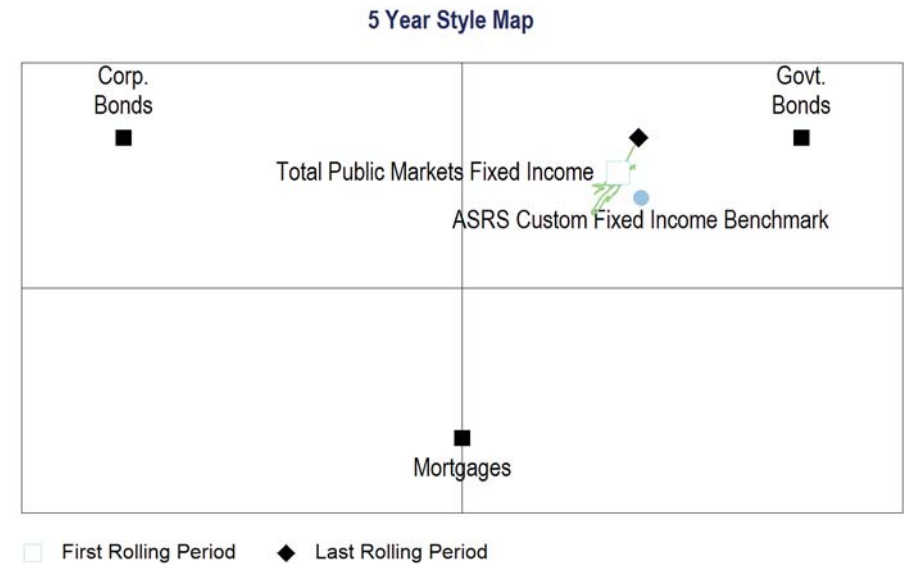
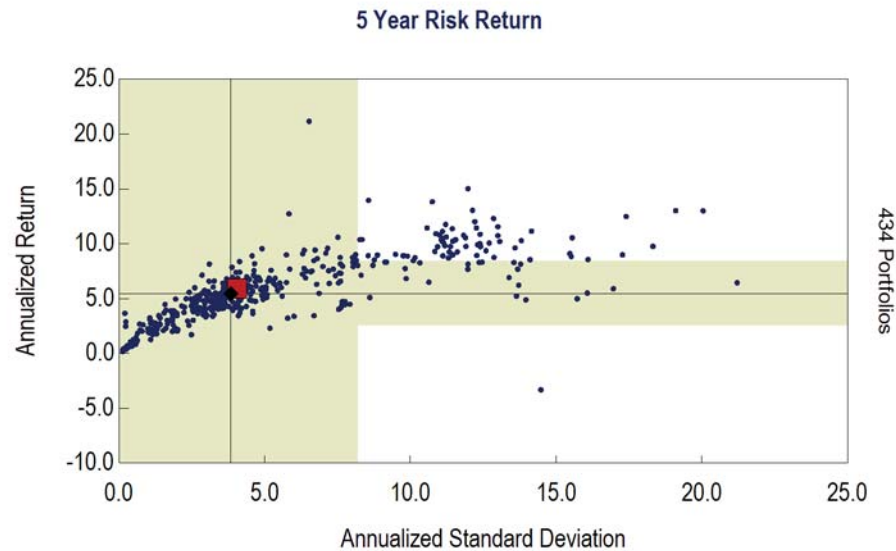
3 Year Style Map



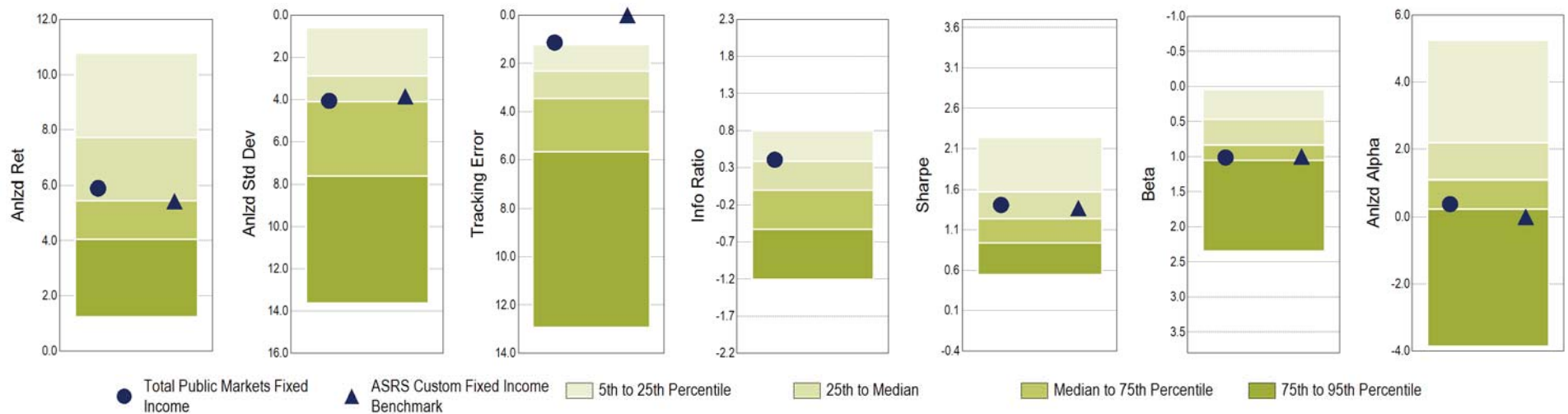
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.

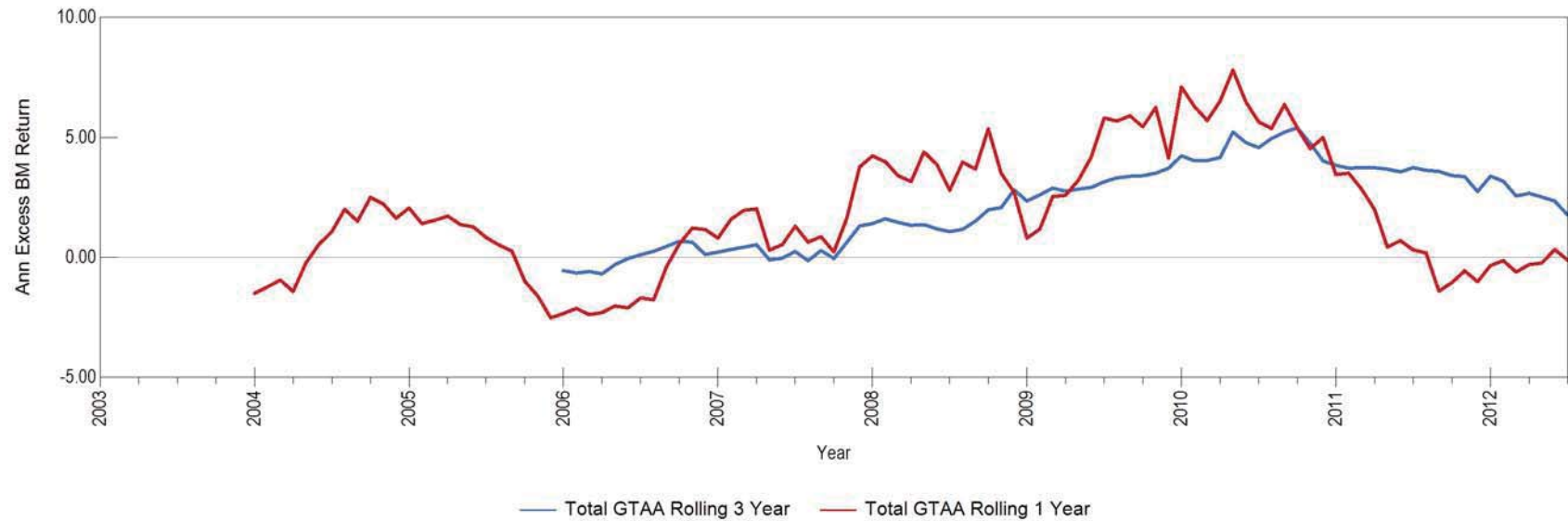




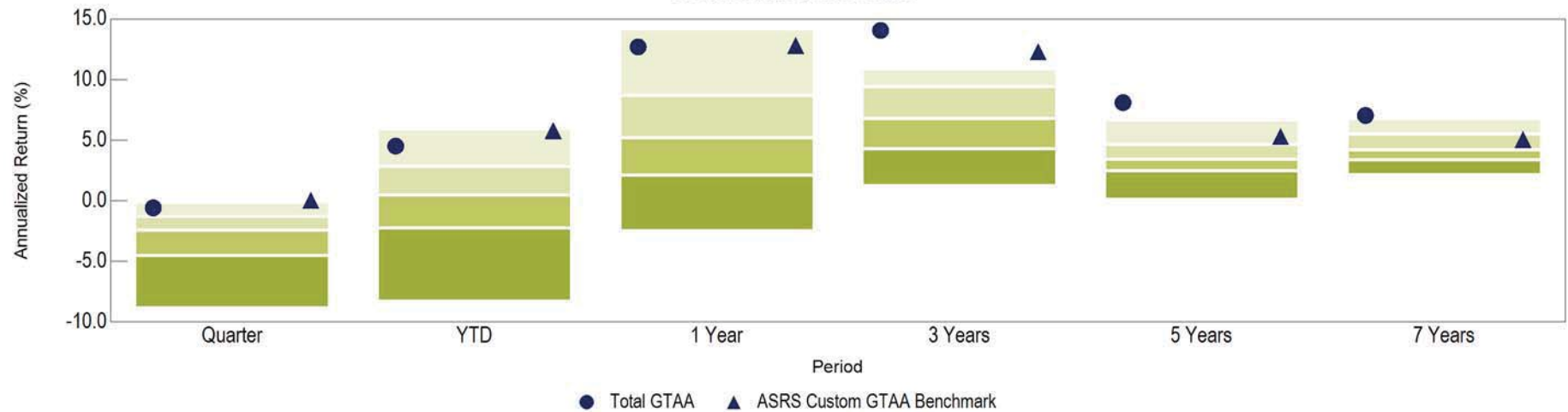
*Style map is returns based.

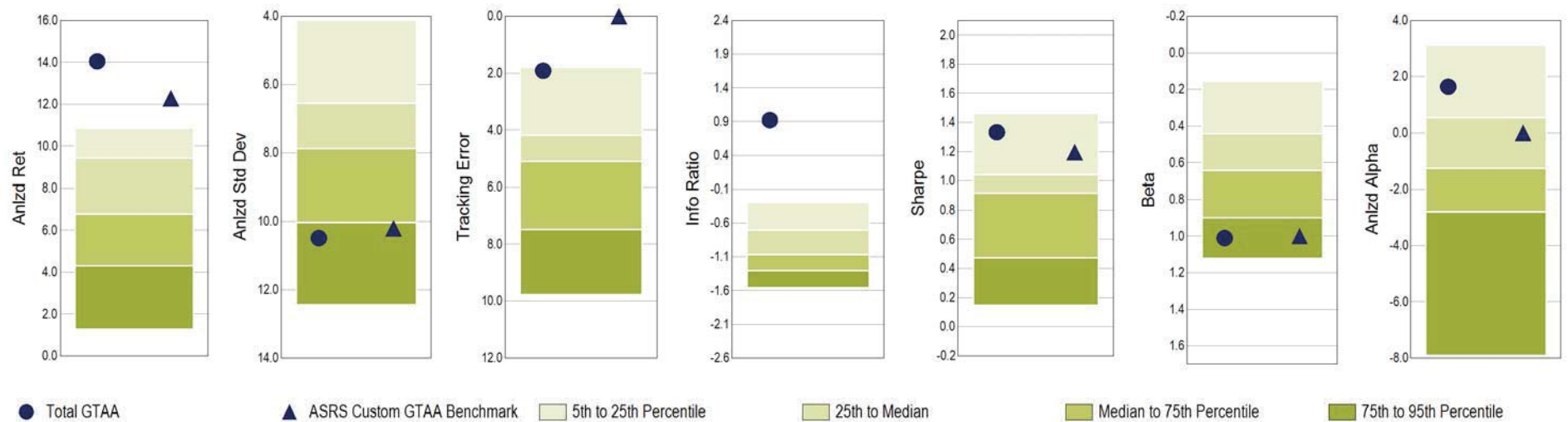
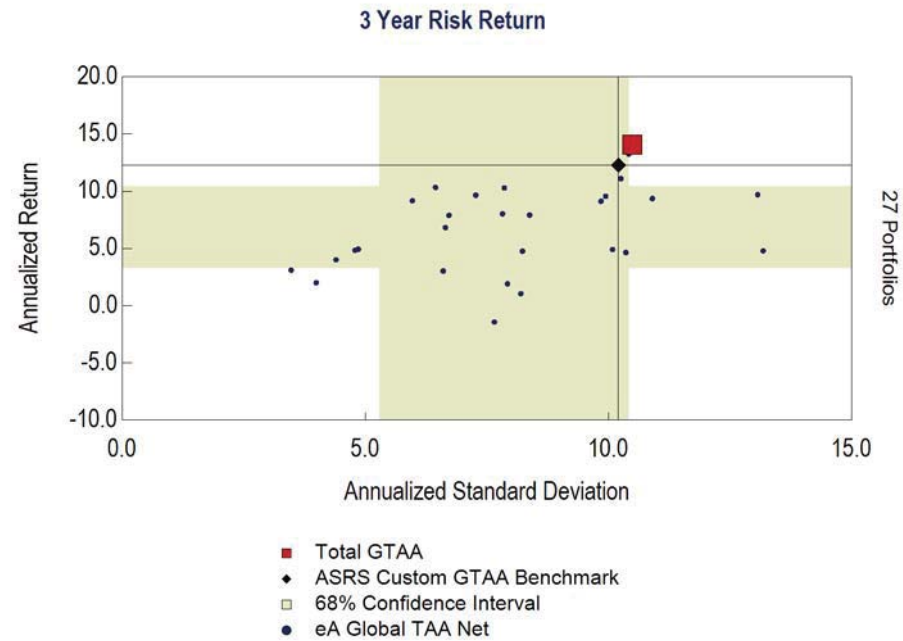


Rolling Annual Excess Benchmark Return

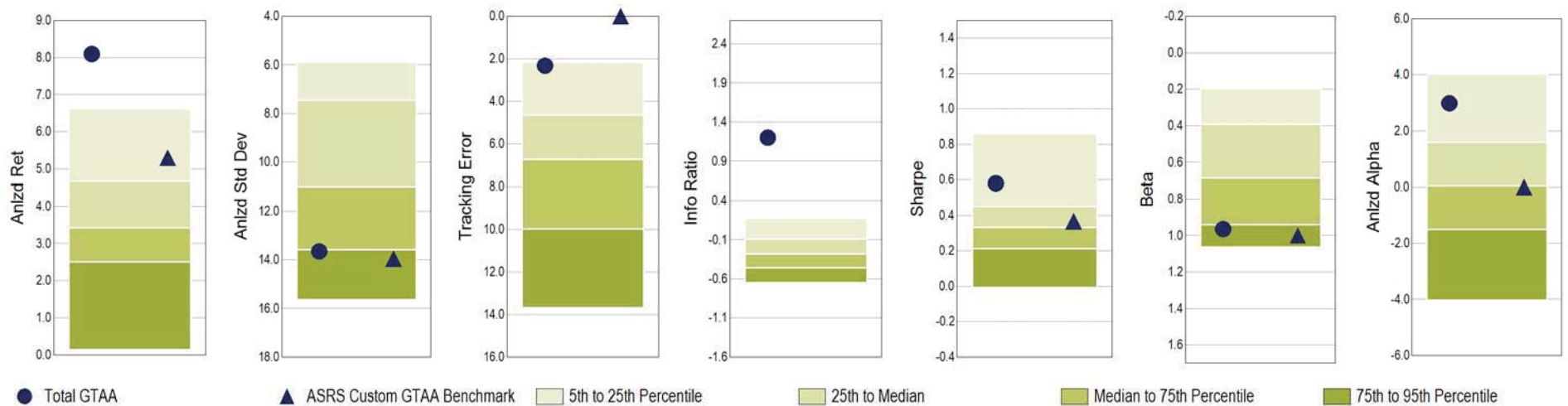
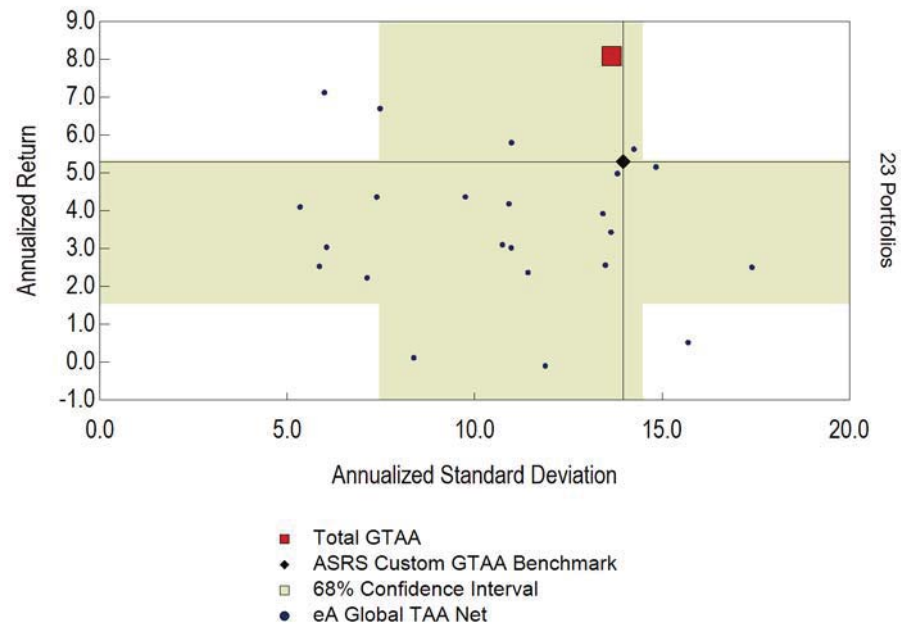


eA Global TAA Net Accounts





5 Year Risk Return



- **Five Asset Class Committee meetings have been held since the last quarterly performance report was presented to the Board.**
- **May 13, 2013 – Public Markets Committee**
 - Commodities Manager Recommendation (\$125 million)
 - Recommendation to replace existing commodities manager with new manager
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Commodities is 4%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- **May 29, 2013 – Private Markets Committee**
 - Review of Private Markets Program Status Reports
 - General Discussion on Markets and Current Deal Flow
 - Private Equity Manager Recommendation (\$50 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- **June 4, 2013 – Private Markets Committee**
 - Opportunistic Debt Manager Recommendation (\$200 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Opportunistic Debt is 0%, but allows for up to a 10% allocation). As of June 30, 2013, the Fund's actual allocation to Opportunistic Debt was 2.9%.
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation

- **June 26, 2013 – Private Markets Committee**

- Review of Private Markets Program Status Reports
- General Discussion on Markets and Current Deal Flow
- Private Equity Manager Recommendation (\$50 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Real Estate Manager Recommendation (\$100 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation

- **July 16, 2013 – Private Markets Committee**

- Real Estate Manager Recommendation (\$200 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation

General Observations

- **The Fund continues to make significant progress moving the portfolio toward the long-term SAAP.**
 - Full implementation results in a further reduction of 3% within U.S. Equities and an increase of 1% to Private Equity and Private Debt, and 2% to Real Estate.
- **The Fund's volatility ranks in the bottom quartile of its peers over all time periods reported herein due to its overweight to equities relative to peers. However, risk-adjusted measures of performance show the Fund is generating more return per unit of risk taken than approximately two-thirds of its peers for the three- and five-year periods.**
 - Implementation of risk-factor ETF program provides an instrument for IMD as an additional tool to control risk.
 - Continued build-out of private debt and opportunistic debt asset classes provided an opportunity to generate equity-like returns with less volatility.
- **\$125 million investment in Commodities strategy provides beta exposure through a swap and generates alpha predominantly through collateral management.**
 - IMD has been evaluating potential additions/replacements to the Fund's allocation to commodities since early in 2013.
 - Strategy has a low correlation of combined alpha sources to existing manager, Gresham.
- **\$200 million commitment to Opportunistic Debt strategy is consistent with house views, which currently favor opportunistic debt and private debt strategies over core bonds and high yield.**
 - 2Q2013 commitments to opportunistic debt (\$200 million), along with current investments, equates to approximately 3.6% of the Total Fund as of 6/30/2013. Long-term SAAP Target to Opportunistic Debt is 0%, but allows up to a 10% allocation.
 - Positioning is consistent with NEPC view of current opportunities within fixed income.
- **\$100 million in commitments to Private Equity strategies in line with strategic plan and pacing model for the asset class.**
- **\$300 million in commitments to Real Estate strategies in line with strategic plan and pacing model for the asset class.**
- **Tactical positioning is consistent with IMD House Views**

Market Environment Update and Outlook

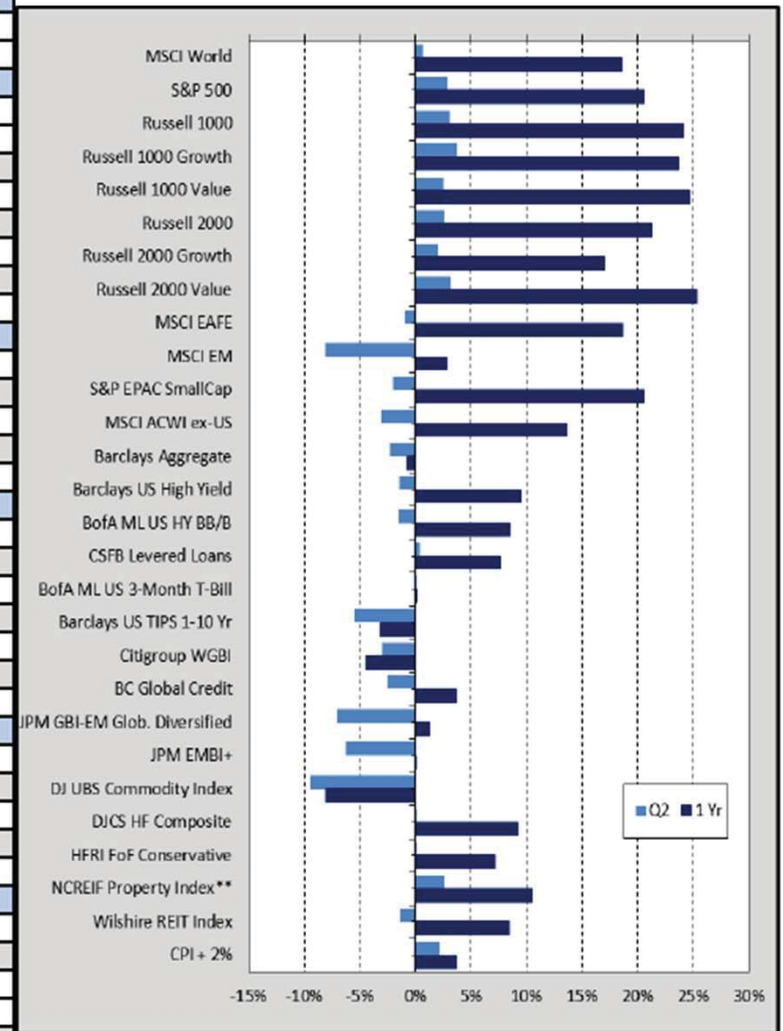


- **Advance estimate of second quarter 2013 GDP growth is 1.7%. First quarter 2013 GDP growth was revised down to 1.8%, after being originally estimated at 2.5%.**
 - Retail sales rose to a 4.5% year-over-year growth rate in June 2013.
 - The inventory-to-sales ratio has remained mostly flat since early 2010 and closed at 1.29 in May 2013 after reaching its highest level since October 2009 in April.
 - Corporate profits as a percent of GDP fell slightly but remained near secular highs at 12.1% at the end of Q2 2013.
 - The trade deficit increased in May 2013.
- **The unemployment rate remained flat at 7.6% in June, its lowest level since 2008; U-6, a broader measure of unemployment, increased to 14.3% during the second quarter.**
 - JP Morgan has stated that sustained GDP growth of 1.5% is needed for positive job creation, and closer to 3% growth is needed to decrease the unemployment rate.
- **Consumer confidence jumped to 81.4 in June, its highest level since January 2008; the Case-Schiller Home Price Index (as of 3/31) rose slightly through the first quarter.**
- **Rolling 12-month CPI increased to 1.8% at the end of June; Capacity Utilization increased slightly to 77.8% in the month.**
- **Fed Funds rate remains at 0.25% while the 10-year Treasury Yield finished June at 2.5%.**
 - Represents more than a 35% increase.
- **Fed balance sheets have increased in 2013, while European Central Bank balance sheets have decreased significantly.**
- **Both U.S. and non-U.S. equities appear cheap relative to long-term averages.**

Arizona State Retirement System

Market Environment - Overview

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI World	World	0.7%	18.6%	13.7%	2.7%	7.3%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Domestic Equity Benchmarks						
S&P 500	Large Core	2.9%	20.6%	18.5%	7.0%	7.3%
Russell 1000	Large Core	2.7%	21.2%	18.6%	7.1%	7.7%
Russell 1000 Growth	Large Growth	2.1%	17.1%	18.7%	7.5%	7.4%
Russell 1000 Value	Large Value	3.2%	25.3%	18.5%	6.7%	7.8%
Russell 2000	Small Core	3.1%	24.2%	18.7%	8.8%	9.5%
Russell 2000 Growth	Small Growth	3.7%	23.7%	20.0%	8.9%	9.6%
Russell 2000 Value	Small Value	2.5%	24.8%	17.3%	8.6%	9.3%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
International Equity Benchmarks						
MSCI EAFE	International Developed	-1.0%	18.6%	10.0%	-0.6%	7.7%
MSCI EM	Emerging Equity	-8.1%	2.9%	3.4%	-0.4%	13.7%
S&P EPAC SmallCap	Small Cap Int'l	-2.0%	20.6%	12.0%	1.8%	10.8%
MSCI ACWI ex-US	World ex-US	-3.1%	13.6%	8.0%	-0.8%	8.6%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	-2.3%	-0.7%	3.5%	5.2%	4.5%
Barclays US High Yield	High Yield	-1.4%	9.5%	10.7%	10.9%	8.9%
BofA ML US HY BB/B	High Yield	-1.6%	8.5%	10.1%	9.4%	8.0%
CSFB Levered Loans	Bank Loans	0.4%	7.6%	6.9%	5.8%	5.2%
BofA ML US 3-Month T-Bill	Cash	0.0%	0.1%	0.1%	0.3%	1.7%
Barclays US TIPS 1-10 Yr	Inflation	-5.5%	-3.1%	3.4%	3.3%	4.5%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	-3.0%	-4.5%	2.7%	3.0%	4.7%
BC Global Credit	Global Bonds	-2.5%	3.7%	6.6%	5.5%	5.7%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local)	-7.0%	1.3%	6.0%	6.7%	10.3%
JPM EMBI+	Em. Mkt. Bonds	-6.3%	0.1%	7.5%	8.4%	9.0%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Alternative Benchmarks						
DJ UBS Commodity Index	Commodity	-9.5%	-8.0%	-0.3%	-11.6%	2.4%
DJCS HF Composite	Hedge Fund	0.1%	9.2%	6.3%	2.9%	6.5%
HFRI FoF Conservative	Fund of Funds	0.0%	7.2%	3.0%	-0.6%	3.4%
NCREIF Property Index**	Real Estate	2.6%	10.5%	13.3%	2.3%	8.5%
Wilshire REIT Index	REIT	-1.4%	8.4%	18.5%	7.2%	10.8%
CPI + 2%	Inflation/Real Assets	2.3%	3.8%	4.4%	3.4%	4.7%



Note: NCREIF Property Index is lagged by one quarter. Performance shown as of March 31, 2012.

Domestic and International Equity

- **Starting in May, global equities trended downward, finishing the quarter with a return of -0.4% according to the MSCI ACWI.**
- **Domestic Equity (S&P 500) outperformed International Equity (MSCI ACWI ex-U.S.) in the second quarter (+6.0%).**
 - In the U.S., equities proved to be more resilient than other asset classes, finishing the quarter with positive results. Performance was boosted by robust returns from stocks in the financial and consumer sectors amidst strong economic sentiment, healthy corporate earnings and continued strengthening in the housing market. Small cap stocks modestly outperformed large cap stocks, and growth outperformed value in small and mid-cap stocks, but value outperformed growth in the large cap segment. So far this year, U.S. equity markets have advanced more than 13%.
 - Developed non-U.S. markets posted a -1.0% during the quarter as measured by the MSCI EAFE Index. News out of Europe and China indicated weakness, while news from the U.S. and Japan indicated improvement. In Europe, economic data signaling contraction led the ECB to cut interest rates from 0.75% to 0.5%. In Japan, investors continued to show a positive reaction to Abenomics' "three arrows" and have begun to look for developments in the areas of structural reform.
 - Emerging markets were driven lower by political unrest in Egypt, a credit crunch among Chinese banks and higher yields in the U.S. market. While emerging markets stocks rebounded in June, they ended the quarter down 8.1%. Within emerging markets, the small cap (-7.4%) and consumer sectors (staples -3.7%; discretionary -3.0%) continue to outperform the broader emerging markets.

Private Equity

- **Private equity fundraising during the first half of 2013 totaled \$136 billion – 51% of the amount raised in 2012 – pointing to an expected modest increase for 2013.**
 - Investor commitments suggest economic optimism with 60% of commitments going to buyout and growth equity funds.
 - Venture capital continues to contract as fundraising fell to 8% of this year's total, well below its 10-year average of 17% of all new funds raised.
 - We remain guarded on the large buyout sector in the U.S. even as some industry data suggest that the capital overhang is declining. High transaction prices leave little room for operational missteps and do not provide protection in the event of a prolonged recession.
 - On the opportunistic side, private direct lending is an attractive fixed income alternative for investors and is competing with mezzanine funds by providing uni-tranche financing to lower- and middle-market businesses at attractive yields with lower fee structures.
- **With the dust yet to settle on the near-term economic outlook, we believe a blend of growth- and value-oriented strategies is vital to balance the macroeconomic risk in a private equity program. We find secondary, turnaround/special situation, and direct lending strategies particularly attractive as they benefit from corporate restructurings and tighter regulation of the global banking industry.**

Fixed Income

- **Nearly all global fixed income sectors posted negative returns in the second quarter of 2013. The sharp sell-off, triggered by indications that the Fed could taper its quantitative easing as early as September, was quick and painful as the search for yield turned into a quest for liquidity and longer duration corporates and emerging market debt dropped dramatically.**
- **Global fixed income performance during the quarter may be best explained by the increase in the yield of 10-year Treasuries during the period.**
 - Beginning the quarter at 1.87%, 10-year Treasuries were yielding 2.52% at the end of June – an increase of 0.65%.
 - Longer-dated portions of the yield curve experienced similar increases, with 30-year Treasuries increasing 0.42% to finish the quarter at 3.53%.
- **The increase in yields resulted in the Barclays Capital U.S. Aggregate Bond Index returning -2.3% in the quarter, bringing year-to-date performance to -2.4%.**
 - Investment grade credit and mortgage-backed securities, the two largest non-government related components of the index, returned -3.4% and -2.0%, respectively.
- **Non-investment grade debt led global fixed income performance, but were still negative.**
 - The Barclays Capital High Yield Index returned -1.4% during the quarter, and the yield on the index jumped nearly 100 basis points to 6.7%.
 - Leveraged loans, as measured by the S&P/LSTA Leveraged Loan Index, were the only major fixed income asset class to post a positive return, albeit small at 0.2%.
- **Weakness in Treasuries fueled losses in emerging market debt. Higher quality issues were most impacted since creditworthy borrowers are typically able to issue long-dated bonds, which are more interest rate sensitive.**
 - Large sovereigns such as Mexico, Brazil and Uruguay often drive performance of the EMBI Index, which measures emerging market debt denominated in external currencies. The index returned -6.1% in the quarter and is down 8.2% so far in 2013.
 - Emerging market debt denominated in local currency also struggled in the period, returning -7.0% for the quarter, which brings year-to-date performance for the category to -7.2%.

Commodities

- **Commodities were the worst performing segment of the market, down 9.5% in the second quarter according to the DJ/UBS Commodity Index.**
 - Oil has been the outlier among commodities, which have mostly experienced downward pressure from slowing emerging markets growth forecasts.
 - Precious metals were hit the hardest, trading off nearly 25% as both gold and silver fell during the quarter.
 - Agriculture and livestock was the best performing segment, aided by strong hog prices.
- **Macroeconomic data surprised investors, mostly on the downside, as slower emerging markets forecasts, particularly in China, impacted demand for commodities. In addition, speculation of the Fed's shift in monetary policy, including tapering the quantitative easing program later in the year, negatively impacted gold prices. Recent selling pressure, along with a possible overreaction to negative news in emerging markets, has created what appears to be a more favorable environment for commodities going forward.**
 - However, future curtailing of growth forecasts or continued negative gold momentum could pose as significant headwinds.

Real Estate

- **NEPC remains positive about opportunities in non-core markets, particularly in Europe. In the U.S., select opportunities exist in non-core real estate for skilled firms with a proven ability to identify undervalued assets, buy right, and create value.**
 - That said, the significant operating and capital structure distress that followed the financial crisis has abated.
- **In Europe, non-core properties are still undervalued relative to core, and significant capital structure distress remains and is compounded by macroeconomic and structural uncertainty.**
 - Bank deleveraging has also contributed to continued capital structure weakness and has provided opportunities for buyers.
 - Banks in Europe historically provided over 90% of real estate lending compared to roughly 50% in the U.S.
 - Opportunity is still in the nascent stages.
 - Real estate debt strategies remain attractive in Europe as well given the distressed lending environment. Consideration should be given to hedging currency risk, when possible.

- **After strong performance across most asset classes in the 1st quarter, markets were roiled by...**
 - Indications the Fed would taper its stimulative policy earlier than expected
 - Concern that growth is slowing in China and across the emerging markets
- **The higher volatility environment has been challenging**
 - Treasury yields spiked on expectations of tapering and continued to rise through June
 - Virtually all markets were down in May and June, leaving investors no place to hide
 - Traditional hedging assets, such as Treasuries, have not worked
 - Emerging markets equity and debt have struggled
- **However...**

- **Despite the turbulent quarter many positives remain:**
 - U.S. equities have posted strong gains through the first half of 2013
 - Interest rates remain low relative to historic levels and stimulation remains in place for now
 - The U.S. economy is recovering and the fiscal deficit has been declining
 - Growth in emerging markets, while slowing, remains higher than developed markets
- **The long-term investment thesis for emerging markets remains intact and valuations remain attractive**
- **Inflation prospects remain muted in the near-term, however, the risk of rising inflation resulting from monetary expansion persists**
- **Illiquid strategies, particular direct lending funds, offer a compelling risk-return profile**
- **Risk parity continues to represent a strong foundation for asset allocation**
- **We expect market volatility to remain elevated in coming months; investors can move at a measured pace to allocate to more attractive asset categories**

- **NEPC research**

- White Papers recently posted to <http://www.nepc.com/research/>
 - *Absolute Tracking: Moving Past Absolute Return for Hedge Fund Benchmarking* – May 2013
 - *Target Date Funds - Tips for ERISA Plan Fiduciaries From the Department of Labor* – April 2013
- Case Study
 - *A Discussion of Defined Contribution Plan Fees, One Plan Sponsor's Perspective* – May 2013
- First Quarter 2013 Market Thoughts
- Second Quarter 2013 Market Thoughts
- NEPC helped write a chapter for the new *Claritas Investment Certificate* textbook

- **Consultant Spotlight**

- Jeffrey H. Mitchell, CFA, CAIA, Senior Consultant
 - Featured in *Money Management Intelligence's* Consultant Spotlight article: "Traditional Beta, Alternative Beta, and Alpha" – May 2013

- **Professional staff hires**

- Chris Hill, Research Consultant, Alternatives
 - Joined NEPC from the Louisiana State Employees' Retirement System (LASERS)

- **Recent events**

- NEPC's 18th Annual Client Conference – May 14-15, 2013 in Boston

- **NEPC's Cambridge office is moving effective September 9, 2013**
 - New Address
 - 255 State Street
 - Boston, MA 02109
 - Our phone number and fax number will remain the same
 - Phone: 617.374.1300
 - Fax: 617.374.1313



Appendix: SAA Policy History



Strategic Asset Allocation Policy (SAAP) History

- 7/1/75 – 12/31/79 – 40% S&P 500/60% Barclays Capital Aggregate
- 1/1/80 – 12/31/83 – 50% S&P 500/50% Barclays Capital Aggregate
- 1/1/84 – 12/31/91 – 60% S&P 500/40% Barclays Capital Aggregate
- 1/1/92 – 12/31/94 – 50% S&P 500/10% MSCI EAFE/40% Barclays Capital Aggregate
- 1/1/95 – 6/30/97 – 45% S&P 500/15% MSCI EAFE/40% Barclays Capital Aggregate
- 7/1/97 – 12/31/99 – 50% S&P 500/15% MSCI EAFE/35% Barclays Capital Aggregate
- 1/1/00 – 9/30/03 – 53% S&P 500/17% MSCI EAFE/30% Barclays Capital Aggregate
- 10/1/03 – 12/31/06 – 53% S&P 500/15% MSCI EAFE/ACWI ex-U.S.¹/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 1/1/07 – 10/31/2009 – 31% S&P 500/7% S&P 400/7% S&P 600/18% MSCI ACWI ex-U.S./5% Russell 2000 (lagged one quarter)/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 11/1/2009 – 6/30/2012 – 28% S&P 500/6% S&P 400/6% S&P 600/13% MSCI EAFE/2% MSCI EAFE Small Cap/3% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/24% Barclays Capital Aggregate/2% Barclays Capital High Yield/6% NCREIF ODCE (lagged one quarter)/3% Dow Jones/UBS Commodities Index
- **7/1/2012 – Present – 23% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/13% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/3% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/8% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index**
- *Interim SAA Policy: 26% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/5% Russell 2000 (lagged one quarter)/16% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/1% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/6% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index

Note: Interim SAA Policy includes a proration of 2% Private Equity, 2% Private Debt, and 2% Real Estate, which are unfunded. Private Equity was prorated to domestic equity; Real Estate was prorated to domestic equity, international equity, fixed income and commodities; Private Debt was prorated to fixed income. Recently approved Strategic Asset Allocation Policy effective July 1, 2012.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter

ASRS Custom Asset Class Benchmark History

- **ASRS Custom Total Equity Benchmark** was 77% S&P 500, 23% MSCI EAFE through 12/31/1999; 76% S&P 500, 24% MSCI EAFE through 9/30/2003; 78% S&P 500, 22% MSCI EAFE/ACWI ex-U.S.¹ through 12/31/2006; 49% S&P 500, 11% S&P 400, 11% S&P 600, 29% MSCI ACWI ex-U.S. through 10/31/2009; 48% S&P 500, 10% S&P 400, 10% S&P 600, 23% MSCI EAFE, 4% MSCI EAFE Small Cap, 5% MSCI Emerging Markets through 6/30/2012; 41% S&P 500, 9% S&P 400, 9% S&P 600, 25% MSCI EAFE, 5% MSCI EAFE Small Cap, 11% MSCI Emerging Markets thereafter.
- **ASRS Custom Domestic Equity Benchmark** was S&P 500 through 12/31/2006; 74% S&P 500, 13% S&P 400, 13% S&P 600 through 12/31/2010; 70% S&P 500, 15% S&P 400 and 15% S&P 600 thereafter.
- **ASRS Custom International Equity Benchmark** was MSCI EAFE through 9/30/2005; MSCI ACWI ex-U.S. through 12/31/2010; 72% MSCI EAFE, 11% MSCI EAFE Small Cap and 17% MSCI Emerging Markets through 6/30/2012; 61% MSCI EAFE, 13% MSCI EAFE Small Cap and 26% MSCI Emerging Markets thereafter.
- **ASRS Custom Fixed Income Benchmark** was Barclays Capital U.S. Aggregate Index through 12/31/2010; 93% Barclays Capital U.S. Aggregate Index, 7% Barclays Capital U.S. High Yield Bond Index through 6/30/2012; 59% Barclays Capital U.S. Aggregate Index, 23% Barclays Capital U.S. High Yield Bond Index, 18% JP Morgan GBI-EM Global Diversified thereafter.
- **ASRS Custom GTAA Benchmark** was 56% S&P 500, 16% MSCI EAFE, 28% Barclays Capital Aggregate through 9/30/2011; 50% S&P 500, 19% MSCI EAFE, 28% Barclays Capital Aggregate, and 3% DJ UBS Commodities Index thereafter.
- **ASRS Custom Inflation-Linked Benchmark** was 100% Barclays Capital U.S. TIPS through 7/31/2010; 50% Barclays Capital U.S. TIPS, 50% DJ UBS Commodities Index through 8/31/2010; 30% Barclays Capital U.S. TIPS, 70% DJ UBS Commodities Index through 5/31/2011; 100% DJ UBS Commodities Index thereafter.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter

- **NEPC uses, as its data source, the plan's custodian bank or fund service company, and NEPC relies on those sources for security pricing, calculation of accruals, and all transactions, including income payments, splits, and distributions. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **The Investment Performance Analysis (IPA) is provided as a management aid for the client's internal use only. Portfolio performance reported in the IPA does not constitute a recommendation by NEPC.**
- **Information in this report on market indices and security characteristics is received from sources external to NEPC. While efforts are made to ensure that this external data is accurate, NEPC cannot accept responsibility for errors that may occur.**